NEW HOPE GROUP

Executive Summary

Executive Summary

1 Introduction

1.1 Background

New Acland Coal Pty Ltd (NAC) currently operates the existing New Acland Coal Mine (the Mine), as a 4.8 million tonne (product coal) per annum (Mtpa) open cut coal mine on mining leases (ML) 50170 and ML 50216, operated under the existing Environmental Authority (EA) EPML00335713. The Mine has reserves that will allow current operations to continue until approximately 2017.

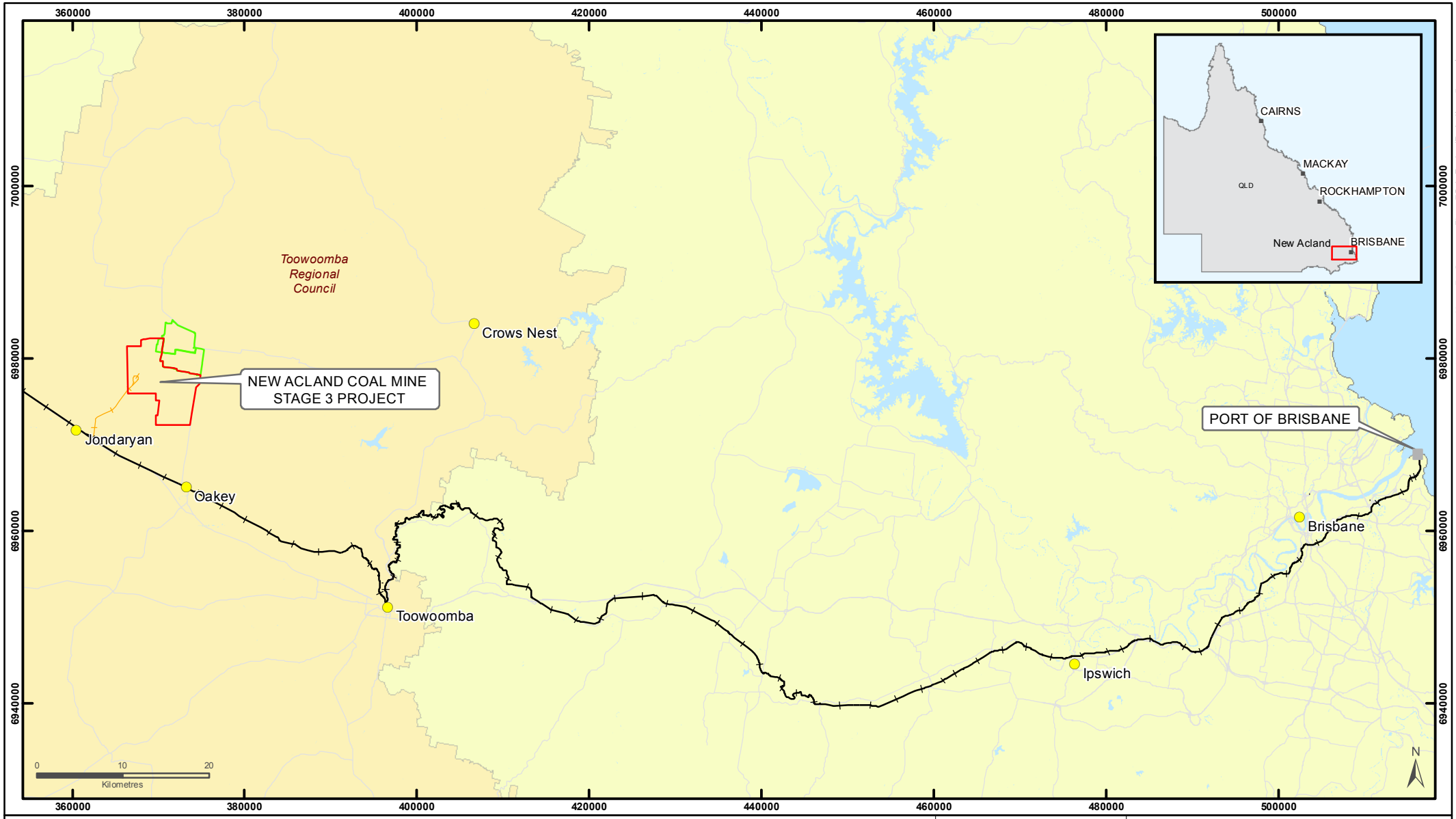
NAC proposes to extend operations of the existing New Acland Coal Mine to approximately 2029 with the inclusion and progressive mining and rehabilitation of two new resource areas within MLA 50232.

NAC submitted an Environmental Impact Statement (EIS) in November 2009 for the New Acland Stage 3 Coal Mine Expansion Project (the original proposal), which was declared a 'significant project' requiring an EIS by the Queensland Coordinator- General (CoG) under Part 4 of the *State Development and Public Works Organisation Act 1971* (SDPWO Act) on 18 May 2007. The original proposal involved the staged expansion of the Mine up to a capacity of 10 Mtpa. The original proposal was expected to extend coal production at the Mine until approximately 2042.

Since that time, the New Hope Group (NHG) liaised with the State and Commonwealth governments in the preparation of a Supplementary Report. Prior to the finalisation of the Supplementary Report, the NHG significantly scaled down the Project's scope, in direct response to comments and concerns raised by Government and other stakeholders during the EIS process.

1.2 The Revised Project

The NHG understands the importance of properly securing its social licence to operate, and as a consequence, has made significant changes to the original proposal. NAC is proposing to develop the New Acland Coal Mine Stage 3 Project (the revised Project), which involves the extension of the Mine's operating life to approximately 2029 with the inclusion and progressive development of two new resource areas within the area covered by MDL 244, now also covered by a Mining Lease Application (MLA) 50232. The revised Project site is located within southeast Queensland's Darling Downs region 14 km north-northwest of Oakey, 35 km northwest of Toowoomba and 177 km west of Brisbane. The revised Project location is depicted in **Figure ES-1**. The revised Project will ensure current employment and economic benefits are not lost to the Darling Downs and that NAC continues to be a major employer in the region.



LEGEND

- Towns and Localities
- Major Road
- Western Rail Line
- Revised Project Rail Spur
- New Aland Coal Mine Stage 3 Project MLA Boundary
- New Acland Coal Mine
- Local Government Area
- Water Resource

NEW HOPE GROUP

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NEW ACLAND COAL MINE STAGE 3 PROJECT

Figure ES-1
Revised Project Location

Scale 1:600,000 on A4
Projection: Australian Geodetic Datum – Zone 56 (AGD84)

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Produced: 8/01/2014

Key features of the revised Project include:

- development of parts of the Manning Vale and Willeroo resource areas;
- upgrade of the existing coal handling and preparation plant and supporting infrastructure;
- construction of a new coal load-out facility on the mining lease and an approximately 8 km rail spur (due to relocation of the existing Jondaryan coal load-out facility);
- roadworks, construction of water management structures and relocation and potential upgrade of the power supply to the revised Project;
- Acland town area, including the Tom Doherty Park, the War Memorial and the Acland No. 2 Colliery would be left in place. Permanent access and utility services to Acland will be maintained over the life of the revised Project;
- the closest point of potential mining operations will be located at least 10 km away from the township of Oakey, compared with 7 km as previously proposed;
- there will be an overall reduction in the total amount of land disturbed for mining activities by more than half, compared to the original Stage 3 proposal;
- continue veneering to coat all transported coal leaving the mine by train as a measure to reduce the potential for coal dust coming from trains;
- Lagoon Creek will not be diverted. Operations will continue to be self-sufficient for water, with water continuing to be purchased from Toowoomba's Wetalla Wastewater Reclamation Facility. Only around 20% of the Wetalla water is purchased by NAC.
- production levels from the New Acland Coal Mine will be reduced by at least 25% to 7.5 Mtpa, from the originally proposed 10 Mtpa.

1.3 Purpose of the EIS

The Environmental Impact Statement (EIS) has been prepared as part of the environmental approval process under State and Commonwealth legislation.

The EIS addresses the requirements of the Terms of Reference (ToR) issued by the CoG on 22 March 2013, presenting the revised Project and describing the measures that will be undertaken to prevent or mitigate any potential adverse impacts on the environment. This EIS also addresses the potential for social impacts and presents mitigation strategies to manage any potentially adverse impacts.

The revised Project is being assessed under the Bilateral Agreement between the Queensland and Australian governments.

1.4 EIS Approval Process

The revised Project is being assessed under the Bilateral Agreement between the State and the Commonwealth. The Australian Government has accredited the *State Development and Public Works Organisation Act* (SDPWO Act) EIS process to meet the environmental assessment requirements under the *Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act). A full legal framework for the revised Project is provided in **Appendix C**.

1.4.1 Commonwealth Approval Process

The Federal Environment Minister declared that the Project was a controlled action on 24 May 2007. The Federal Environment Minister accepted the project variations on 9 November 2012 as an amendment of the controlled action. The matters protected under the controlled action decision are Listed Threatened Species and Communities (section 18 and 18A). The Federal Environment Minister has also notified that the revised Project requires approval as an action that has or will have or is likely to have a significant impact on a water resource (section 24D and 24E).

As part of the EIS process, the Federal Environment Minister will review the EIS to ensure that it adequately addresses the requirements of the EPBC Act. The Federal Environment Minister's assessment will follow preparation of the CoG's Report. The Federal Environment Minister will ensure that input from other relevant Australian Government agencies is provided.

At the conclusion of the SDPWO Act EIS process, the Federal Environment Minister will receive a copy of the CoG's Report and will take the CoG's Report into account when making his decision under the EPBC Act.

1.4.2 State Approval Process

The SDPWO Act provides a mechanism for project proposals to be assessed through a public EIS process. The SDPWO Act gives the CoG the power to declare a project, which meets criteria set down in the SDPWO Act, to be a "coordinated project" (previously "significant project") for which an EIS is required. The CoG coordinates a whole-of-government environmental impact assessment process, as set-out under Part 4 of the SDPWO Act.

On 14 November 2012, the Coordinator-General confirmed that, as a result of project modifications, it required the EIS process to restart at the draft ToR stage. New ToR were released on 22 March 2013. The EIS currently being prepared by NAC is required to address the matters set out in the ToR.

The key elements of the impact assessment process for the revised Project are:

- preparation of the Revised Project Overview; issued November 2012, which supersedes the Initial Advice Statement (2007), and is available online at www.dsdip.qld.gov.au/newacland;
- development of a draft ToR for the revised Project; issued in December 2012. The 67 submissions received were considered by the CoG in finalising the ToR;
- preparation of the final ToR; issued by the CoG in March 2013, which supersedes the original ToR (2007). A copy of the final ToR is located in **Appendix D** and a table of cross references to where each item is found in the EIS is provided in **Appendix E**;
- submission of the EIS for the revised Project to the CoG and Advisory Agencies and public display of the EIS following advertisement of its availability, seeking submissions on the EIS;
- potential preparation of a Supplementary Report addressing issues raised on the EIS provided to CoG, Advisory Agencies and all others who made a submission on the EIS; and
- preparation of the CoG's Assessment Report, which is made publicly available. The CoG's Assessment Report evaluates the EIS (which may include a Supplementary Report) and may state conditions that must attach to subsequent statutory approvals necessary for the revised Project, or may state that any such applications for approvals must be rejected.

1.5 Structure of the EIS

The EIS is structured as follows:

Volumes 1 and 2

- **Chapter 1** provides an Introduction and summarises applicable legislation, approvals and objectives for the revised Project;
- **Chapter 2** provides a justification for the revised Project and covers sustainability issues;
- **Chapter 3** provides a detailed Project Description;
- **Chapters 4 – 19** covers the various elements of the environment, including social and economic, addressing potential impacts of the revised Project and the mitigation strategies to prevent or minimise impacts;
- **Chapter 20** summarises the cumulative impacts for the revised Project.
- **Chapter 21** includes the revised Project's Environmental Management Plan (EM Plan).
- **Chapter 22** summarises the conclusions and recommendations for the revised Project.

Volumes 3, 4 and 5

Technical Appendices including:

- Copies of NAC's corporate information, including the environmental policy and planning framework document and NAC's land acquisition protocols;
- a list of the relevant qualifications and experience of the key study team members and specialist sub-consultants;
- a comprehensive list of project approvals required for the revised Project;
- New Acland Coal Mine Stage 3 Project ToR (March 2013);
- Terms of Reference Cross Reference Table, which links the requirements of each section/subsection of the ToR with the corresponding section/subsection of the EIS, where those requirements have been addressed;
- Project key policies and guidelines;
- Supporting technical reports and data;
- Environment Protection and Biodiversity Conservation Act 1999 (EPBC Act) Assessment;
- Offset Strategy- state and federal;
- Environmental management framework;
- an EM Plan that describes management strategies to achieve acceptable environmental conditions and makes commitments about how impacts will be managed;
- consultation information; and
- a list of all commitments made in the EIS, with cross-references to the relevant section of the EIS.

The full EIS is available through the following means:

- download the draft EIS at www.aclandproject.com.au, or
- order a free copy on DVD by telephoning +61 7 3418 0500 or emailing aclandinfo@newhopecoal.com.au,, or
- purchase a printed copy by telephoning +61 7 3418 0500 or emailing aclandinfo@newhopecoal.com.au, or
- view a printed copy between 18 January 2014 and 3 March 2014 at the following locations:
  - Toowoomba Regional Council service centres:
    - 4 Little Street, Toowoomba
    - 64 Campbell Street, Oakey
    - 89 Mocatta Street, Goombungee
  - National Library of Australia, Parkes Place, Canberra
  - New Hope Community Information Centre, Shop 90/88, Campbell Street, Oakey
  - State Library of Queensland, Cultural Centre, Stanley Place, South Bank, Brisbane.

1.6 Key findings of the EIS

The EIS identifies and assesses the existing values and the potential environmental, social and economic impacts of the revised Project, proposes measures to avoid or mitigate any adverse impacts, enhance the beneficial impacts and manage residual impacts during the construction, operation and decommissioning phases.

Table ES-1 Summary of Key Impacts and Mitigation Measures for the revised Project

Environmental/ Social Aspect	Potential Impacts	Significance	Proposed Mitigation Measures	Residual Effect
Land Resources	■ Impacts on potential Strategic Cropping Land ■ Potential net reduction in the land suitability rating ■ Potential increase in risk of erosion	M	■ Implement progressive rehabilitation program throughout the mine life ■ Implement Final Landform Technical Report ■ Implement Topsoil Management Plan	L
Surface Water	■ Minimal impact on flooding and flows downstream of MLA 50232 and no impacts at Jondaryan ■ No diversion of Lagoon Creek ■ Minor increases in flood levels upstream of railway crossing of Lagoon Creek	L	■ Buffer and conservation plan along Lagoon Creek to improve riparian vegetation and water quality ■ Mine water management system to maintain downstream water quality ■ Engineering design to mitigate impacts of flooding from rail crossing	L
Groundwater	■ Modelling predicts some drawdown in close proximity to revised Project	M	■ Extensive groundwater monitoring ■ Periodic revision of the groundwater model's accuracy based on monitoring ■ Provide alternative water supplies for any affected users	L
Terrestrial Ecology	■ Potential impacts on vegetation communities including Natural Grassland, Brigalow and Poplar Box ■ Potential impacts on threatened species	M	■ Avoidance of impacts ■ Biodiversity offset ■ Threatened species relocation ■ Rehabilitation of disturbed areas	L
Aquatic Ecology	■ No diversion of Lagoon Creek	L	■ Buffer along Lagoon Creek to improve riparian vegetation and water quality	L
Air Quality	■ Potential for exceedance of air quality objectives at sensitive receptors to west of the revised Project and Acland	H	■ Air Quality Management Strategy including minimising air emissions, Dust Forecasting System, air quality monitoring and Adaptive Air Quality Management	L

Environmental/ Social Aspect	Potential Impacts	Significance	Proposed Mitigation Measures	Residual Effect
Noise and Vibration	▪ Potential for exceedance of noise objectives at sensitive receptors at Acland	H	▪ Attenuate major mobile equipment, ROM Bin and Materials Handling Facility ▪ Proactive noise management through weather forecasting, real-time noise monitoring and adaptive management processes	M
Cultural Heritage	▪ No direct impacts on heritage items in Acland	L	▪ Preserve Acland Town through heritage management plan	L
Traffic	▪ One school bus route affected	M	▪ Undertake detailed intersection assessment ▪ Notification for re-routing of bus route	L
Social	▪ Safety risks associated with travelling to site ▪ Decreased connectivity around the site	M	▪ Management of health and safety issues including fatigue ▪ Maintain access for individual property owners. Communication program for changes to traffic and access conditions	L
Economics	▪ Temporary impact to agricultural output ▪ Transfer of employment from other industries leading to increased labour costs ▪ Increase in migration to local area	L	▪ Beneficial post mine land use ▪ Provide training and opportunities for unemployed workers ▪ Continued land management by the Acland Pastoral Company (APC) ▪ Source employment locally where appropriate	L

L=Low, M=Medium, H=High

The revised Project will support construction jobs of up to 260 and approximately 435 operational jobs at peak, and attract construction costs of around $896 million. The revised Project will directly support approximately $6.6 billion in economic output from construction / capital and operational expenditure, while indirect and induced output will contribute a further $12 billion for a total output impact of almost $19 billion. Agricultural output valued at $2.1 million per year or total of $34.3 million will be temporary halted over the life of the revised Project. It is expected that progressive rehabilitation during the life of the operation would return the majority of impacted land to a state suitable for agricultural production, similar to successful rehabilitation to grazing that has been demonstrated at New Acland Mine.

Overall, the EIS concludes that, with the implementation of the proposed mitigation measures, the impacts of the revised Project will be appropriately managed whilst providing significant economic, as well as other benefits for the local, regional, state and national economies.

NAC will continue to work in close consultation with local residents, landholders, local businesses, government agencies, community and environmental groups and other key stakeholders throughout the planning and development of the revised Project to achieve mutually beneficial outcomes and relationships.

1.7 EIS Submissions

Any person, group or organisation can make a submission about this EIS to the CoG. Such submissions do not have to relate to the whole of the EIS and may relate to any aspect. Persons making a submission do not have to be an expert in any of the issues assessed in the EIS.

The EIS comments and submissions must be sent to the CoG within the comment period advertised in the notice about the EIS; be signed by each person who makes the submission; state the name and address of each person who makes the submission and state the grounds of the submission and the facts and circumstances relied on. A fact sheet and submission form will be published on the CoG's website.

All submissions, comments and enquiries regarding this EIS should be addressed to:

Post: The Coordinator-General
C/- EIS Project Manager – New Acland Coal Mine Stage 3 Project
Coordinated Project Delivery
PO Box 15517
CITY EAST QLD 4002 Australia
Fax: +61 7 3452 7486
Email: newaclandproject@coordinatorgeneral.qld.gov.au

2 Project Overview

2.1 The Proponent

The revised Project Proponent is New Acland Coal Pty Ltd (NAC), which is a wholly owned subsidiary of New Hope Corporation Limited. New Hope Corporation Limited is an independent Australian company, publicly listed on the Australian Stock Exchange. Both NAC and New Hope Corporation Limited are part of the New Hope Group (NHG).

The NHG has a highly successful record in the development and management of world-class open cut coal operations, including the Jeebropilly and New Oakleigh Mines near Ipswich, the New Acland Coal Mine near Toowoomba, as well as several exploration projects across Queensland.

During 2006, NAC was granted approval and a new ML for the Stage 2 expansion of New Acland Mine under the *Environmental Protection Act 1994* (EP Act) and *Mineral Resources Act 1989* (MR Act). During 2008, NAC was granted approval for the construction and operation of the Wetalla Pipeline under the SDPWO Act. The Commonwealth and State governments regulated the approvals process for each project. Each project was also subject to the highest level of environmental impact assessment and was required to produce an EIS as part of the approvals process.

The Stage 2 expansion of New Acland Mine has allowed NAC to extend and grow its existing mining business, which continues to provide significant economic benefits to the local region and the State. The Wetalla Pipeline has provided NAC with a sustainable solution for the Mine's and the revised Project's water supply requirements, through the use of treated recycled water from the Toowoomba Regional Council's (TRC) Wetalla Water Reclamation Facility (WWRF) and the removal of the use of groundwater as the main water supply source.

The NHG is committed to responsible environmental management of the group's mining operations, exploration projects and other resource based activities. To further promote this commitment, the NHG has recently re-invigorated its environmental management system to ensure that responsibility for environmental management actions are delegated to the appropriate organisational level, to create a practical and sustainable level of environmental management activities based on risk factors, and to promote continuous improvement of environmental management.

Further information relating to the revised Project can be obtained from:

Project Manager – New Acland Project

New Acland Coal Pty Ltd, PO Box 47, Ipswich, Qld 4305

Tel +61 7 3418 0500

Fax +61 7 3418 0355

Email aclandinfo@newhopecoal.com.au

Further information about the revised Project can be obtained from: www.aclandproject.com.au.

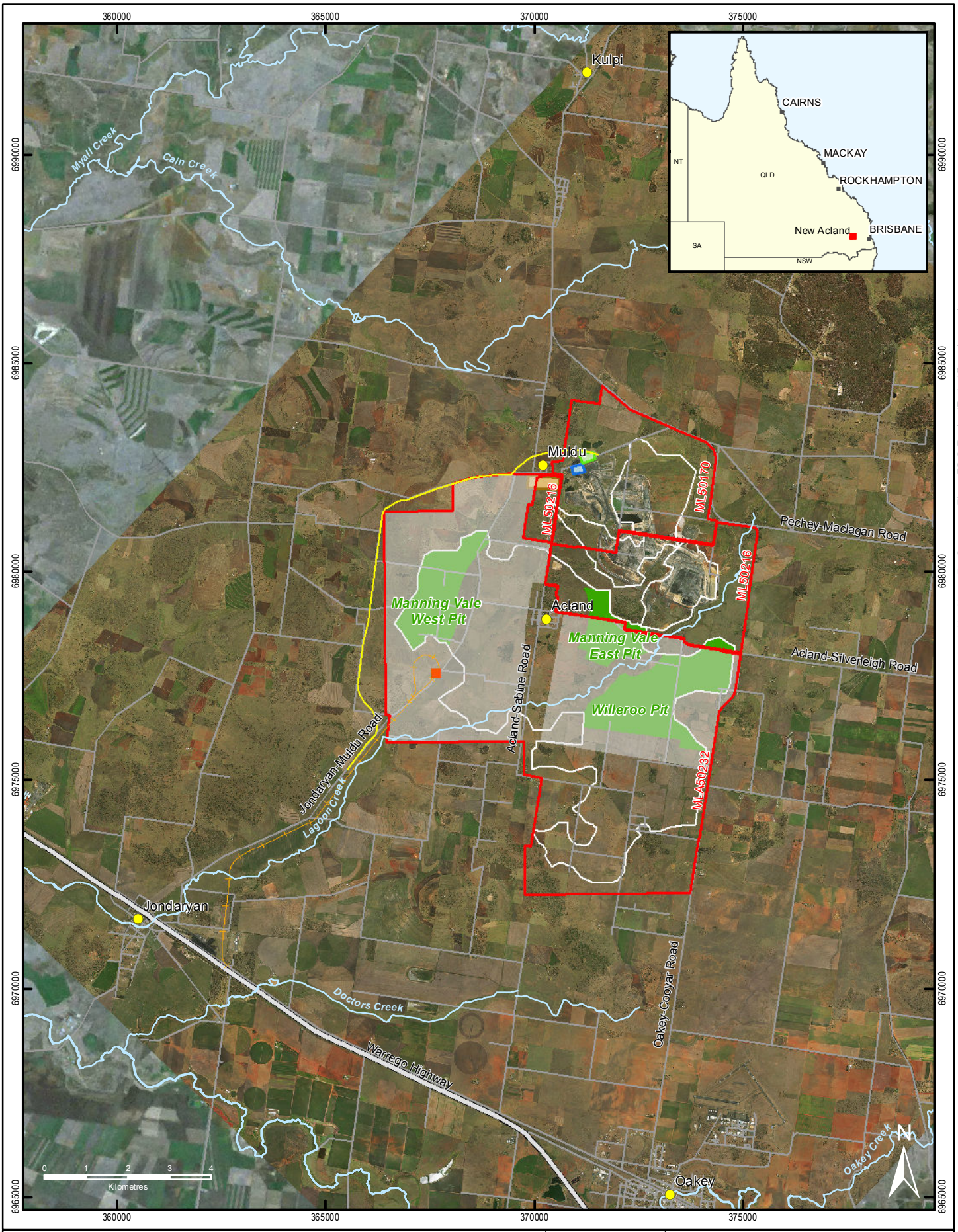
2.2 Project Description

The revised Project involves the extension of the Mine's operating life to approximately 2029 with the inclusion and progressive development of two new resource areas within MLA 50232. These resource areas are the Manning Vale and Willeroo resource areas. The revised Project will include mining in three new pits, namely, the Manning Vale West, Manning Vale East and Willeroo pits.

The key components of the revised Project are:

- expansion of the existing mining activities into parts of the Manning Vale and Willeroo resource areas within MLA 50232, located to the south and west of the current MLs 50170 and 50216;
- production increase up to 7.5 Mtpa of product coal which equates to approximately 14 Mtpa Run-of-Mine (RoM) coal;
- production of up to 80.4 Mtpa of product coal over the life of the revised Project;
- progressive disposal of coarse rejects to cells within the overburden dumps, along with fine tailings being disposed of in In-Pit Tailings Storage Facilities (ITSFs);
- emplacement of two out-of-pit spoil dumps associated with the Manning Vale and Willeroo mine pits;
- generation of three depressed landforms at the end of mining by backfilling and re-profiling final mine pits;
- construction of Materials Handling Facility (MHF) on ML 50216;
- upgrade of the existing Coal Handling Preparation Plant (CHPP) complex, RoM and product coal stockpile areas and supporting infrastructure on ML 50170;
- implementation of the current mine surface water management system involving various water management structures staged to accommodate the progressive development of the Mine and based on the principles of diverting clean water and capturing and reusing "mine affected" water from disturbed areas;
- upgrades to the existing administration and heavy vehicle maintenance area on ML 50170;
- relocation and potential upgrade of the current power supply for the mine operation and the local 11kV distribution system;
- diversion of the Jondaryan-Muldu Road around the Manning Vale resource area;
- decommissioning of the Jondaryan Rail Loadout Facility (JRLF);
- construction of a new 8 km rail spur line and balloon loop from Jondaryan onto MLA 50232;
- construction of the Train Loadout Facility (TLF) within MLA 50232;
- progressive and continuous rehabilitation of mined areas back to grazing.

A more detailed description of the revised Project is provided in **Chapter 3**. An overview of the revised Project layout is shown in **Figure ES-2**.



LEGEND

- Towns and Localities
- Highway
- Roads
- Creeks
- Mining Tenements
- Stage 3 Pit Areas
- Coal Resource Area

Revised Project Site

- Train Loadout Facility
- Rail Spur
- Jondaryan-Muldu Road Diversion
- Proposed Extent of Surface Rights Area
- CHPP Precinct
- Material Handling Facility
- Mine Industrial Area

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NEW ACLAND COAL MINE STAGE 3 PROJECT

Figure ES-2
Revised Project Overview

Scale 1:120,000 on A4
Projection: Australian Geodetic Datum – Zone 56 (AGD84)

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Mining

The mining method proposed for the revised Project is an open cut mining operation with truck and excavator/loader, which is currently employed at the Mine. A generalised representation of the mining process (from mine to customer) is presented in **Figure ES-3**.

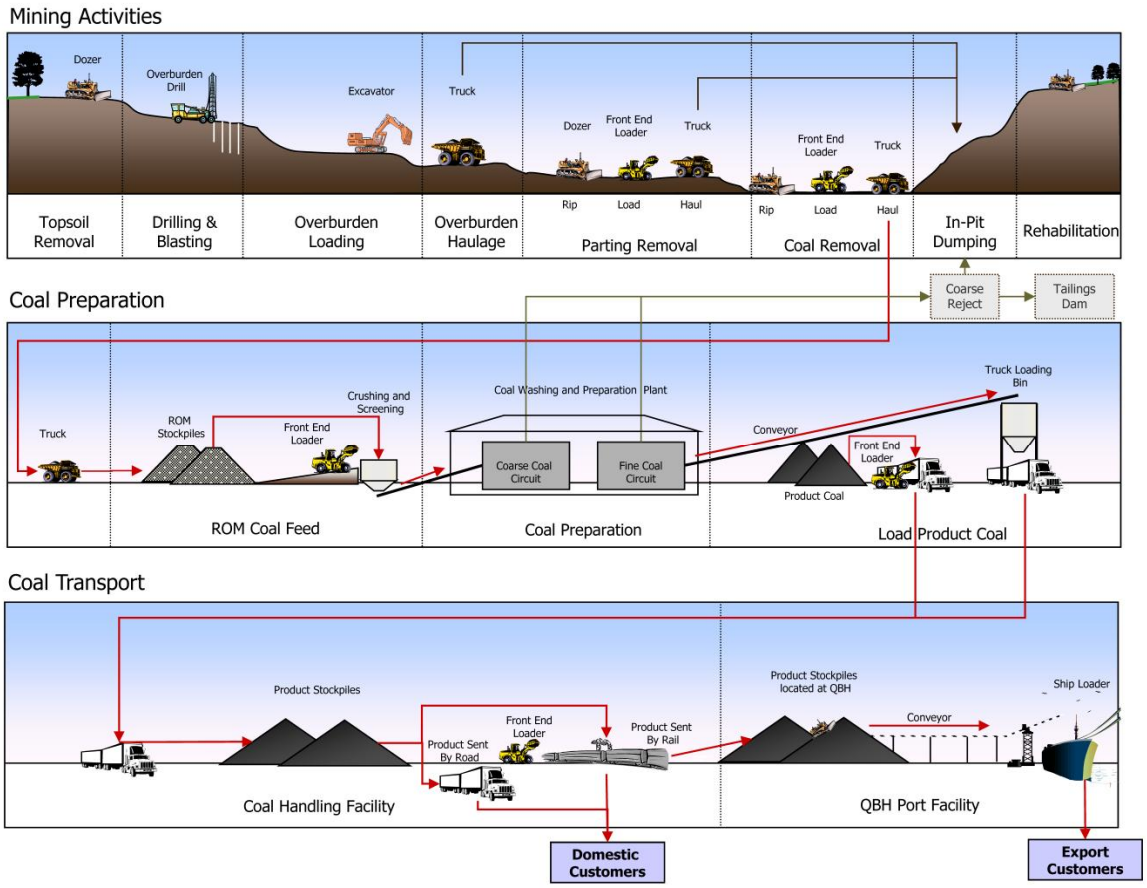
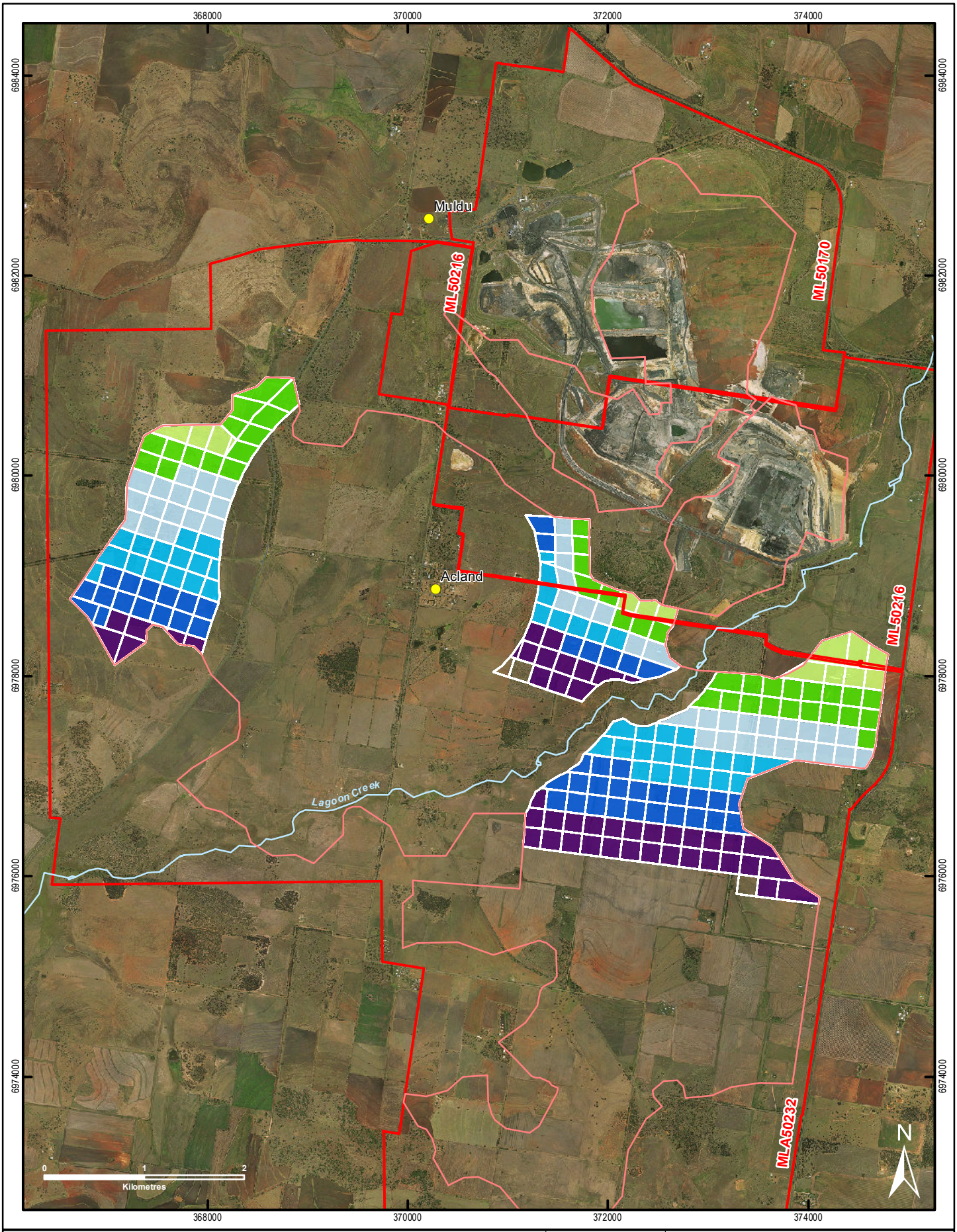


Figure ES-3 Mining Process Overview

The revised Project involves the continued development of the Mine by the progressive commissioning of two additional resource areas within MLA 50232. The two resource areas will be developed sequentially and combined with the current operations to supply up to 7.5 Mtpa of saleable product coal for export and domestic markets until approximately 2029.

NAC estimates that approximately 2.5 years will be required to complete design, construction and other related activities to facilitate the revised Project.

The life of mine schedule is outlined in **Figure ES-4**. The life of mine schedule has been modified to allow an exclusion zone around Acland, increase the buffer distance from Oakey and to avoid disturbance of Lagoon Creek.



LEGEND

- Towns and Localities
- Mining Tenements
- Coal Resource Area
- Creeks

Year

- FY2017-18
- FY2019-20
- FY2021-22
- FY2023-24
- FY2025-26
- FY2027-29

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NEW ACLAND COAL MINE STAGE 3 PROJECT

Figure ES-4 - Life of Mine Schedule

Scale 1:50,000 on A4
Projection: Australian Geodetic Datum - Zone 56 (AGD84)

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Coal Transportation

NAC is planning to construct a new 8 km rail spur and balloon loop for the revised Project. This initiative will involve the total decommissioning of the Jondaryan rail Loading Facility to improve the efficiency and safety of coal transport off-site. The new rail spur and balloon loop for a large portion of its route is planned to run immediately adjacent the existing Jondaryan-Muldu Road reserve,

A total of up to 200,000 tonne per annum of product coal will be transported by road from the revised Project site to domestic customers in southeast Queensland.

Decommissioning and Rehabilitation

The decommissioning and final rehabilitation of the revised Project will occur on a staged basis over several years and will involve:

- decommissioning of the JRLF to commence in 2018 and is expected to be completed in 2019.
- assessing whether infrastructure assets will be retained, sold for recycling or relocation, or disposed of as general or regulated waste
- a rigorous monitoring and reporting program to confirm the rehabilitated land has achieved the agreed rehabilitation performance criteria; and
- a continuous series of scientifically based grazing trials to develop a suitable grazing management regime for the rehabilitated land.

The decommissioning strategy for the Mine, associated infrastructure and the JRLF is detailed in **Section 3.11**.

2.3 Project Justification and Sustainability

The New Acland Mine employs approximately 300 people. A large proportion of employees are permanent residents in the region with 35% based in the local district (including Oakey and Jondaryan district) and a further 45% based in Toowoomba. Current operations are estimated to directly contribute $300 million annually in the Southeast Queensland economic region and $110 million annually in the Darling Downs economic region through goods and service, wages, taxes and royalties. The Mine's current reserve is forecast to be depleted by 2017.

The revised Project will enable the continuation of the New Acland Coal Mine beyond 2017 and maintain employment and economic benefits to the Darling Downs and the State to approximately 2029. The revised Project will directly employ 435 people at full production representing an additional 135 direct job opportunities above current employment levels at the Mine. Including flow on impacts, the operational phase is expected to support the equivalent of approximately 2,546 full-time equivalent jobs in Queensland, from a total of 3,082 full-time equivalent jobs in Australia annually.

The revised Project is expected to provide the following benefits:

- Boost economic activity with an estimated direct construction/capital cost of the revised Project of $896 million and direct operating costs are approximately $450 million per annum at full production with a total of $6.6 billion over the life of the revised Project. Significant contribution will be made to the State's economy through indirect and induced flow on benefits, estimated at approximately $1,395 million per year during construction and operation (including direct, indirect and induced impacts), or a total of $16.7 billion over the life of the project.
- Significant contribution to the Australian economy, estimated at approximately $18.7 billion to Australian economic output over the life of the mine (including direct, indirect and induced impacts), which includes the contribution to the state economy outlined above.
- Direct employment of up to 260 people during the peak construction phase and approximately 435 people during the peak operational phase. In total, there will be opportunities for direct, indirect and induced employment in construction, transport and the supply of goods and services of up to 3,082 full-time equivalent jobs in Australia annually.
- Contribution to the long-term viability of local businesses through the support of a diverse range of community initiatives and community-based organisations including local schools and sporting clubs, community groups and centres, health and aged care organisations, regional industry associations, charities, festivals and events through the Community Investment Fund and Sponsorship and Donations programmes.
- Provides support for the preservation of the Tom Doherty Park, the War Memorial and the Acland No 2 Colliery in the Acland area.

In the event that the revised Project was not to proceed:

- the Mine would close in 2017 with the loss of employment for 300 full time workers, 160 contractors and the loss of current annual economic contribution of $300 million to Southeast Queensland and $110 million to the Darling Downs;
- there would be a loss of 260 construction and additional 135 operational job opportunities in the future along with the flow on (indirect) employment opportunities;
- significant future export income would not be realised;
- injection of revenue of over $6.6 billion directly and $12.1 billion indirectly into the economy would not occur; and
- significant State and Federal government taxes and royalties would not be generated.

Chapter 2 provides additional information supporting the need for the revised Project.

3 Environmental, social and economic values and potential impacts

3.1 Land Resources

The revised Project site is located within the Lagoon Creek catchment. The majority of the terrain within the catchment is undulating and land use is predominantly grazing. Lagoon Creek is grazed and cultivated up to and within the creek channel. In the upper reaches of the catchment, the terrain becomes steeper and possesses tracts of remnant vegetation. Higher, localised peaks in the Lagoon Creek catchment are also vegetated with trees.

The land parcels contained within the revised Project site are predominantly freehold and leasehold tenures held by Acland Pastoral Company (APC) and currently there are no registered Native Title Claimants over these areas.

Predominant land use patterns of the revised Project site have remained grazing with cash and forage cropping to supplement pastures. Much of the revised Project site has long been cleared of its original vegetation due to agricultural production, although localised areas of original remnant vegetation remain alongside Lagoon Creek, relic alluvial plains and upland low hills. The revised Project site has been subject to long periods of continued dry years and unreliable rainfall since the early 1990's. Nearby land uses include grazing, pig farming, dairying, grain storage and various rural homestead properties.

A range of soil types exist on the gently undulating topography of the Study area in which climate, topographical position and old sedimentary periods with more recent volcanic activity have played an important role in the formation of the soil mass. Most prominent soil types are the deep, heavy clay alluvia, lighter clay 'scrub soils' and well-structured texture contrast soils which occur on undulating plains. Areas of sandy non cracking clays and sandy duplex soils also occur.

The soil survey identified a total of 12 soil types within the study area which include two variants. The variants in this survey are for the high quality agricultural soil B1 and cover situations of reduced soil depth (shallow variant) or areas of increasing slope (upland variant). These variants are of minor occurrence but are noted as they have slightly reduced agricultural suitability.

All soils are considered to be suitable for grazing on improved pastures with the exception of some on the upper slopes where steeper soil types exist. The study area supports grazing industries for beef and dairy production. Grazing is predominately based on native pastures and also occurs on mixed farming enterprises combining grain and fodder production. A number of other minor industries including piggeries, horticulture and animal studs are present within the study area due to the diversity of soils, proximity to markets and a favorable climate. Pasture lands occur throughout the study area and mainly occur in soil types A3, A4, A5, B3 and B4. Most of these areas carry native or sown grasses supporting grazing livestock. These pasture lands are (or were) the basis for a number of beef enterprises and to a lesser extent, dairy enterprises of the study area.

The suitability of post-mine features for cropping and grazing purposes is constrained by the slope angle, the nature of soil cover and altered moisture profile and subsoil quality. A return to grazing is entirely feasible for much of the revised Project site post-mining, as demonstrated by successful scientific grazing trials by APC on rehabilitated land.

The revised Project will disturb some areas with existing cropping use, but mostly areas suited to grazing use.

- Within the revised Project there are areas mapped as potential Strategic Cropping Land (SCL) as defined under Section 25 of the SCL Act. The revised Project site is located within the Eastern Darling Downs Zone and is in a protection area under the SCL Act. Under the SCL Act permanent impacts cannot be approved in areas mapped as potential SCL if that potential SCL is in the southern protection area (section 94 known as the permanent impact restriction). However, as a certificate of application for MLA 50232 was issued on or before the 23 August 2012 for a contiguous area to the existing mining leases, the mining lease application and its related EA amendment application is excluded from the 'permanent impact restriction'.
- The Regional Planning Interest Bill (the Bill) was introduced by the Queensland Government on 20 November 2013. The Bill integrates the policy objectives of the SCL Act by identifying SCL as areas of regional interest. The Bill has been referred to the State Development Infrastructure and Industry Committee for review. If the legislation is enacted the revised Project would require a regional interests authority. The legislation will be considered throughout the approval process for the revised Project.

The revised Project is also within the area covered by the Darling Downs Regional Plan (the Regional Plan) which commenced on 18 October 2013. The Regional Plan aims to provide improved certainty for communities and business through specific land use mapping. Of particular relevance to the revised Project, the Regional Plan seeks to provide direction for the competing demands associated with the resources and agricultural industries through the introduction of Priority Agricultural Areas (PAAs), Priority Agricultural Land Uses (PALUs) and Priority Living Areas (PLAs). The Regional Plan shows the revised Project area as being within a PAA. The Regional Plan states that “PAA co-existence criteria enable compatible resource activities to co-exist with high-value agricultural land uses within PAAs. This will in turn maximise opportunities for economic growth to ensure that the Darling Downs remains a resilient, diversified and prosperous region”. The coexistence criteria will be prescribed under future legislation.

A search of the Contaminated Land Register (CLR) and the Queensland Environmental Management Register (EMR) has been conducted. No land parcels were recorded on the CLR. The search revealed that five sites within or adjacent to the revised Project are listed on the EMR. One of those sites is the former Acland Tip. It has been estimated that the Tip contains approximately 61,500 m^3 of soil and waste material. Chemical analysis has been undertaken of samples of soil and waste material collected from the Tip. Based on the results of the chemical analysis, it has been concluded that the majority of the waste material can be classified as general waste and as such does not require any specialised management. The preferred strategy to manage the waste is to relocate the material to an engineered containment cell within one of the revised Project’s mine pits.

The spoil associated with the revised Project consists of weathered and fresh overburden having slightly higher clay content than the interburden and floor material. This material is generally geochemically benign, with negligible acid generation potential. During the initial phases of operation, and continuing throughout life of mine, it is proposed to carry out analysis of overburden and tailings material to confirm its geochemical characteristics. Overall, the material tested is likely to be suitable for revegetation. Topsoil will also be used as a surface treatment prior to revegetation to minimise any effects from sodic spoil.

The overriding principle for the rehabilitation program at the revised Project is to ensure the disturbed land is returned to a post-mine condition that is safe, stable, non-polluting, self-sustaining and requires minimal maintenance. The main post-mine land use at the revised Project will be grazing based on a self-sustaining vegetation community using appropriate pasture grasses and scattered plantings of native tree and shrub species. A conservation zone will be established along the riparian zone of Lagoon Creek and will also cover Bottle Tree Hill.

The revised Project's general rehabilitation areas comprise the greater part of the active mining areas, the out-of-pit dumps, the final voids and mine infrastructure. The general rehabilitation areas equate to approximately 2,030 ha and have been designated to be returned to a final land use of 'grazing with scattered areas of native tree species for shade, ecological and aesthetic purposes'. The rehabilitation strategy will allow a majority of the former revised Project site to be re-incorporated into APC's agricultural activities. The return of the revised Project land to grazing is consistent with the current land uses practised within the region and is considered a long term sustainable outcome for the revised Project. A progressive rehabilitation program will be implemented throughout the mine life and reported in each Plan of Operations and will commence when areas become available within the operational land.

Rehabilitated land will be monitored on an annual basis until monitoring data confirms successful achievement of the agreed rehabilitation performance criteria. The experience at the Mine has shown that pasture establishment on elevated landforms (rehabilitated out-of-pit dumps) is successful. Grazing trials will continue to confirm productivity and inform a long term management strategy for the rehabilitated land.

A Mine Closure Plan will be submitted to the Department of Environment and Heritage Protection (DEHP) at least five years prior to the surrender of the EA. The decommissioning and final rehabilitation of the revised Project will occur on a staged basis over several years.

A comprehensive land resources impact assessment is presented in **Chapter 4**.

3.2 Surface Water Resources

The revised Project site is located within the Lagoon Creek catchment of the greater Condamine River catchment. Lagoon Creek is an ephemeral creek, with a shallow, narrow poorly defined channel and wide floodplains. The creek has been moderately disturbed through past agricultural practices including a number of in-stream dams. NAC is not proposing to divert or alter the Lagoon Creek channel and has offset the revised Project's resource areas from the creek bank to the mining pit limit by approximately 150 m. The 150 m operational offset includes 50 m adjacent to the creek of 'no disturbance' buffer to actively promote the re-establishment of the creek's riparian zone and 100 m of

temporary disturbance for infrastructure which will include flood levees, roads and other service corridors . This has been successfully achieved on the current Mining Leases and thus the buffer distance either side of Lagoon Creek within the revised Project site will be incorporated into the Mine's current conservation zone.

The revised Project is not expected to have a significant impact on the existing flood regime. Furthermore, the analysis indicates that there would not be additional flooding impacts at Jondaryan as a result of the revised Project.

Flood protection for the revised Project's resource areas will be provided through two flood levees designed to provide protection from a Probable Maximum Flood (PMF), which is well in excess of the current legislative requirements. In addition, NAC has committed to ensuring the revised Project's final landform is outside the existing PMF flood extent, and as a result, there are no flooding impacts on the key aspects of the proposed final landform (i.e. the depressed and elevated landforms). Surface water licences are all located a significant distance downstream with the closest located 19 km downstream of the revised Project site. All but one of the licences are located downstream of the confluence with Oakey Creek and Lagoon Creek. However, it is considered that there will be negligible impacts to water licence holders and stock and domestic users downstream of the revised Project site.

NAC is not seeking any new water allocations. The majority of the revised Project water demands are provided from the WWRF through a pipeline constructed in 2009. This beneficial use of a waste water product ensures the revised Project possesses a sufficient and reliable water supply.

As part of NAC's water management system, runoff from disturbed areas will be captured and treated with an amount available for reuse by the revised Project's mining activities. In line with current industry guidelines, NAC's water management system will include a controlled release system to manage rainfall events and minimise adverse impacts to the downstream receiving environment. The ephemeral nature of Lagoon Creek means that controlled releases will occur on a minimal basis over the life of the revised Project, and as a result, are not expected to have a significant impact on water quality, aquatic ecology and downstream water users.

NAC will expand the existing Lagoon Creek monitoring program as part of the Water Resource Management Plan (WRMP) for the revised Project. NAC will expand its current water quality monitoring program to incorporate the construction, operation and decommissioning aspects of the revised Project. The water quality monitoring program is designed to ensure the revised Project's water management is effective, to demonstrate compliance with the revised Project's statutory requirements and to ensure the receiving environment downstream of the revised Project is not being adversely impacted. The WRMP is located in **Appendix J.4**.

A comprehensive surface water impact assessment is presented in **Chapter 5**.

3.3 Groundwater Resources

Five aquifers exist within the revised Project site; the Quaternary alluvial aquifer, the Tertiary basalt aquifer, the Walloon Coal Measures aquifer, and the deeper Marburg Sandstone and Helidon Sandstone aquifers.

The Quaternary Alluvial aquifer is limited in spatial extent and within the revised Project site may only exist within the westernmost part in association with Lagoon Creek, although investigations have shown that Lagoon Creek is very likely disconnected from the regional groundwater system. The alluvial aquifer is known to form a significant groundwater resource outside of the revised Project site, especially in association with Oakey Creek south of the revised Project site.

There is only a minor outcrop of the Tertiary Basalt aquifer in the north-western and extreme south-western sections of the revised Project site. The basalt is known to form a major aquifer immediately west of the revised Project site.

The Walloon Coal Measures aquifer outcrops over much of the revised Project site, and forms the main groundwater aquifer intersected by the revised Project. On a regional scale the Walloon Coal Measures is considered a confining unit (aquitard) of the Great Artesian Basin (GAB), however, on a local scale it is known to support significant groundwater extraction for stock and domestic use.

The Marburg Sandstone and Helidon Sandstone aquifers are major aquifers of the GAB and are the deepest semi-confined to confined aquifers underlying the revised Project site. These aquifers lie at significant depth below the revised Project's mine pits. Only very small impacts from the revised Project are expected on the Marburg Sandstone aquifer and no impacts will occur to the Helidon Sandstone aquifer. In addition, the Helidon Sandstone is hydraulically separated from the shallower Marburg Sandstone by the Evergreen Formation (refer to **Figure ES-4)**, a major regional aquitard of the GAB.

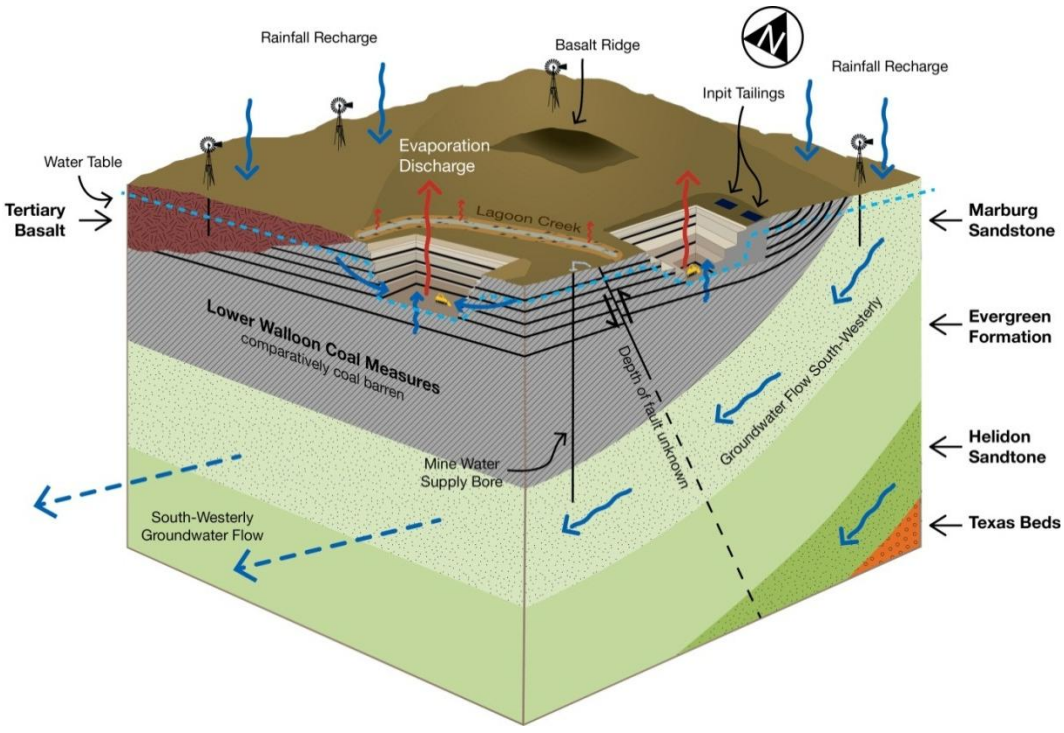


Figure ES-5 Conceptual Hydrogeological Model

Groundwater use in, and adjacent to, the revised Project is limited to landholders who draw on groundwater through bores for water supply purposes. The current Mine uses groundwater from bores accessing the Tertiary Basalt aquifer as the main potable water supply, groundwater inflows to the mining pits from the Walloon Coal Measures aquifer for industrial purposes (dust suppression), and maintains access to the Marburg Sandstone and Helidon Sandstone aquifers as an emergency water supply for industrial purposes. In general, reliance on groundwater for industrial purposes has decreased significantly since the WWRF Pipeline was brought online in 2010. No groundwater Dependent Ecosystems have been identified within or adjacent to the revised Project site.

As part of the groundwater impact assessment process, a numerical groundwater model was used to predict the effect of groundwater drawdown from mine pit dewatering. The modelling was used to assess the potential effect of groundwater drawdown resulting from mine pit inflows on existing groundwater users. Mine pit inflows are predicted to range from 0.8 to 4.0 ML/day during mining, with predicted drawdown in the Walloon Coal Measures aquifer to the south and east of the revised Project site to be not much more than 5 m outside the Project's boundaries. Drawdown in the Walloon Coal Measures and Tertiary Basalt aquifers outside 3km of the western project boundary are predicted to be less than 5 m and drawdown within the Marburg Sandstone aquifer is predicted to be less than 3 m throughout the revised Project's duration, with impacts greater than 2 m limited to the revised Project site.

After cessation of mining in 2030, groundwater levels are predicted to gradually recover so that, for the most part, there is less than 5 m residual drawdown outside the revised Project's boundaries. Recovery to pre-mining conditions throughout the revised Project site is limited by evapotranspirative losses from the depressed landforms (rehabilitated final voids) with groundwater discharge to the depressed landforms predicted to continue at a rate only slightly less (3.5 ML/day) to that in the last year of mine operation. Drawdown adjacent to the last areas to be mined is predicted to remain relatively high (approximately 20 m to 30 m) due to the ongoing evaporation-driven groundwater discharge. A pit lake is predicted from modelling to form within the Manning Vale West depressed landform, however is very unlikely to overflow into the neighbouring land or surface waters. A lake is unlikely to form to any significant degree in the Willeroo depressed landform and from modelling is not predicted to form at all in the Manning Vale East depressed landform. Groundwater level recovery within the depressed landforms remains at 30 to 40 m below the level of the pre-mining water table in the long term, due to the ongoing evapotranspirative groundwater discharge. Should pit lakes form, significant salinisaiton of the lakes is not predicted to occur due to the dilution effect of incident rainfall and runoff within the depressed landforms. The depressed landforms form a depression of the potentiometric surface within the vicinity of the depressed landforms and act as a groundwater sink. As a result, water from the depressed landforms will not flow outwards and into the regional groundwater system.

The 1 m drawdown extent is predicted to remain at approximately 7 km from the revised Project's boundary at its greatest (western) extent in the long term, post-mining, due to ongoing evapotranspiration-driven groundwater discharge to the depressed landforms. However, the groundwater system is expected to recover post-mining to a new steady state-equilibrium such that no additional groundwater impacts are expected other than those that exist at the end of mining in 2030.

The revised Project is not predicted to have a detrimental effect to the groundwater quality at, and surrounding, the revised Project site. The groundwater monitoring program currently being undertaken by the Mine will be extended to include additional locations within and outside the revised Project site, with new monitoring installations located in areas where drawdown impacts, and receptors sensitive to those impacts, are predicted to occur. The results of the groundwater monitoring program will be used to mitigate and compensate potential impacted landholders, and will further inform and refine the groundwater impact assessment for the revised Project, with model refinement occurring on a regular basis.

Mitigation measures will be put into place should the effects of dewatering affect existing users. Examples of mitigation include installation of new pumps, deepening of existing bores, installation of a new bore at another location on the property, or provision of an alternative supply of water. NAC will undertake a comprehensive bore characterisation program for third party groundwater users in the predicted impact area to identify the exact requirements for 'Make Good Provisions' for those affected users.

NAC will manage the potential groundwater impacts from the revised Project using a dedicated Groundwater Monitoring and Impact Management Plan (GMIMP). The GMIMP will be regularly reviewed over the life of the revised Project and, as required, will be updated based on monitoring results, new outputs from revisions to the groundwater modelling and any other applicable groundwater management matters that relate to operation of the revised Project. The GMIMP will form a supporting document to NAC's Plan of Operations for the revised Project.

NAC will discuss and agree with the administering authority, the need for on-going groundwater management, including monitoring during the decommissioning phase of the revised Project.

A comprehensive groundwater impact assessment is presented in **Chapter 6**.

3.4 Terrestrial Ecology

The revised Project site has a long history of vegetation clearing and grazing, resulting in significant losses of remnant forest and woodland; suppression of natural regeneration through cropping and grazing; a high level of habitat fragmentation; introduction of a range of pest vertebrates and weed invasion. These impacts are evident throughout the revised Project site with only small remnants of original vegetation present.

Even though the majority of the revised Project's footprint is located on cleared agricultural land, the revised Project will result in the clearing of some remnant vegetation. A total of 142.9 ha of regional ecosystem vegetation will be cleared, but there will also be areas of vegetation and habitat unaffected by the revised Project, which will continue to be viable areas for fauna to use for feeding, resting and roosting.

Approximately 40.1 ha of remnant bluegrass grassland and approximately 28.7 ha of brigalow woodland will be removed as part of the revised Project unavoidable impacts on protected vegetation and species at both Commonwealth and State level will be mitigated through biodiversity offsets.

The Conservation Zone Management Plan (CZMP) for the Mine has been implemented to incorporate the revised Project. The CZMP is a specific management plan for the progressive re-establishment of the riparian zone of Lagoon Creek including revegetation and management goals/objectives, planned revegetation techniques, rehabilitation acceptance criteria, a monitoring and reporting regime, a maintenance regime for weeds, and a comprehensive long term management regime.

Three threatened flora species occur within the disturbance area of the revised Project site: Belson's Panic (*Homopholis belsonii)* (Vulnerable), Lobed bluegrass (*Bothriochloa biloba)* (Vulnerable) and Finger panic grass (*Digitaria porrecta)* (Endangered). A Threatened Species Relocation Management Plan (TSRMP) has been developed for the transplanting and relocation of threatened species. This plan includes the transplantation and management goals/objectives, site details, a propagation strategy, transplantation techniques, transplantation success criteria, a monitoring and reporting regime, a maintenance regime and a comprehensive long term management regime.

Two listed species are known from the revised Project site, these are the Koala and Grey-headed Flying fox. The Koala habitat along Lagoon Creek will be retained, although small areas of the poplar box communities outside of the conservation zone will fall within the disturbance footprint. Habitat will continue to be available to the species along Lagoon Creek and the unhindered movement of Koalas will continue once the revised Project is constructed and operated. Two Rare fauna species (Painted Honeyeater and Little Pied Bat), recognised under the *Nature Conservation Act 1992* (NC Act), were recorded within the revised Project site. The long-term rehabilitation of Lagoon Creek will ultimately increase the area and quality of habitat available to these species, which for conservation purposes, will benefit these species at local and regional scales. The retention of areas of habitat suitable to local species will also contribute to the ongoing presence of these species in the Acland area.

Overall, the habitat in the revised Project site for listed fauna species and native species generally, is of poor quality. The site has previously undergone significant clearing for cultivation and grazing and is heavily disturbed and mostly comprised of cleared land and access tracks. The small patches of remnant vegetation that remain are generally associated with Lagoon Creek and farm houses. As a result, these small patches are highly fragmented and isolated. Consistent with a landscape in this condition, the area is heavily invaded by introduced pest species such as the Feral Cat (*Felis catus*) and Wild Dog (*Canis familiaris*), Indian Mynas (*Acridotheres tristis*), Red Fox (*Vulpes vulpes)* and European Rabbits (*Oryctolagus cuniculus*), and weeds including Velvet Tree Pear (*Opuntia tomentosa*) and Rhodes Grass (*Chloris gayana*).

A comprehensive terrestrial ecology impact assessment is presented in **Chapter 7**.

3.5 Aquatic Ecology

Lagoon Creek is located in the Oakey Creek sub-catchment in the northeast of the upper Condamine River catchment. The Lagoon Creek catchment has a long history of disturbance from activities including grazing and mining and as a result, riparian and aquatic vegetation, as well as channel diversity and bank stability have been highly impacted and exotic weeds are now prevalent.

The aquatic ecology Study area is located downstream of the Mine and receives discharges from the Mine as part of the Water Infrastructure Management system, which is regulated by the conditions set

out in the Mine's EA. Discharges from the Mine are not common and mainly occur in periods of high flow in Lagoon Creek.

Macrophyte diversity in Lagoon Creek is low, with fringing sedges and rushes the most dominant forms. Macrophytes are likely to be restricted to the permanent waterbodies and were not observed in the channel habitats during the flow period. Lagoon Creek supports a low diversity of macroinvertebrates, which is similar to other systems impacted by high levels of disturbance from clearing and agricultural land use.

Fourteen fish species are known to occur in the surrounds of the aquatic ecology Study area. Of these, the Endangered, Vulnerable and Near Threatened (EVNT) species Murray Cod (*Maccullochella peelii*), or its potential habitat, was identified within a 25 km radius. However, within the Lagoon Creek itself, only three species of fish have been recorded: spangled perch (*Leiopotherapon unicolor*), gudgeon (*Hypseleotris* spp.), and the introduced Mosquitofish (*Gambusia holbrooki*). These three species are widely distributed and tolerant of disturbed environments. Furthermore, the degraded aquatic habitat and connectivity, and land use impacts in Lagoon Creek, are likely to restrict the presence of fish species to those with high tolerance of degraded habitats and water quality.

The application of the mitigation strategies for management of water quality, altered flows, aquatic habitat, watercourse crossings and the introduction and spread of weeds associated with the revised Project have been developed with respect to the existing environment of the aquatic ecology Study area. The proposed mitigation strategies provide a suite of management actions to avoid or minimise the potential impacts of the revised Project and to maintain the aquatic values of Lagoon Creek.

The potential presence of Murray Cod in Lagoon Creek, in the reach associated with the Study area, is considered to be very unlikely due to the abundance of instream barriers downstream, the limited and moderately disturbed aquatic environment, limited instream habitat and the degraded water quality. The potential impacts of the revised Project on water quality, alteration of hydrology, instream barriers, aquatic habitat and downstream environmental values are considered to be minimal, with the implementation of the mitigation measures, and are extremely unlikely to have a detrimental effect on the distribution of Murray Cod in the Oakey Creek sub-catchment. A comprehensive assessment of water quality is presented in **Chapter 5**.

It is considered that potential impacts associated with the revised Project will not extend to the Regional ecosystem identified approximately 24 km downstream of the Study area. Given this distance downstream, the likely ephemeral nature and off-stream location of the possible wetland, and the proposed mitigation strategies and management actions for the revised Project, the risks of potential impacts on water quality are very low.

A comprehensive aquatic ecology impact assessment is presented in **Chapter 8**.

3.6 Air Quality

Air quality in the Study area for the revised Project is influenced by current operations of the Mine and other localised sources including wind-blown dust and bushfires. NAC continues to undertake a range of air quality monitoring around the Mine (i.e. from 2001 to present). All recorded PM_{10} concentrations

since commencement of monitoring are below the air quality goals in the *Environmental Protection (Air) Policy 2008* (EPP (Air)).

Dispersion modelling with CALPUFF predicted PM_{10} and Total Suspended Particulates (TSP) concentrations and dust deposition rates at sensitive receptors for three operating scenarios for the revised Project. The nearest sensitive receptors to the revised Project are presented in **Figure ES-6**.

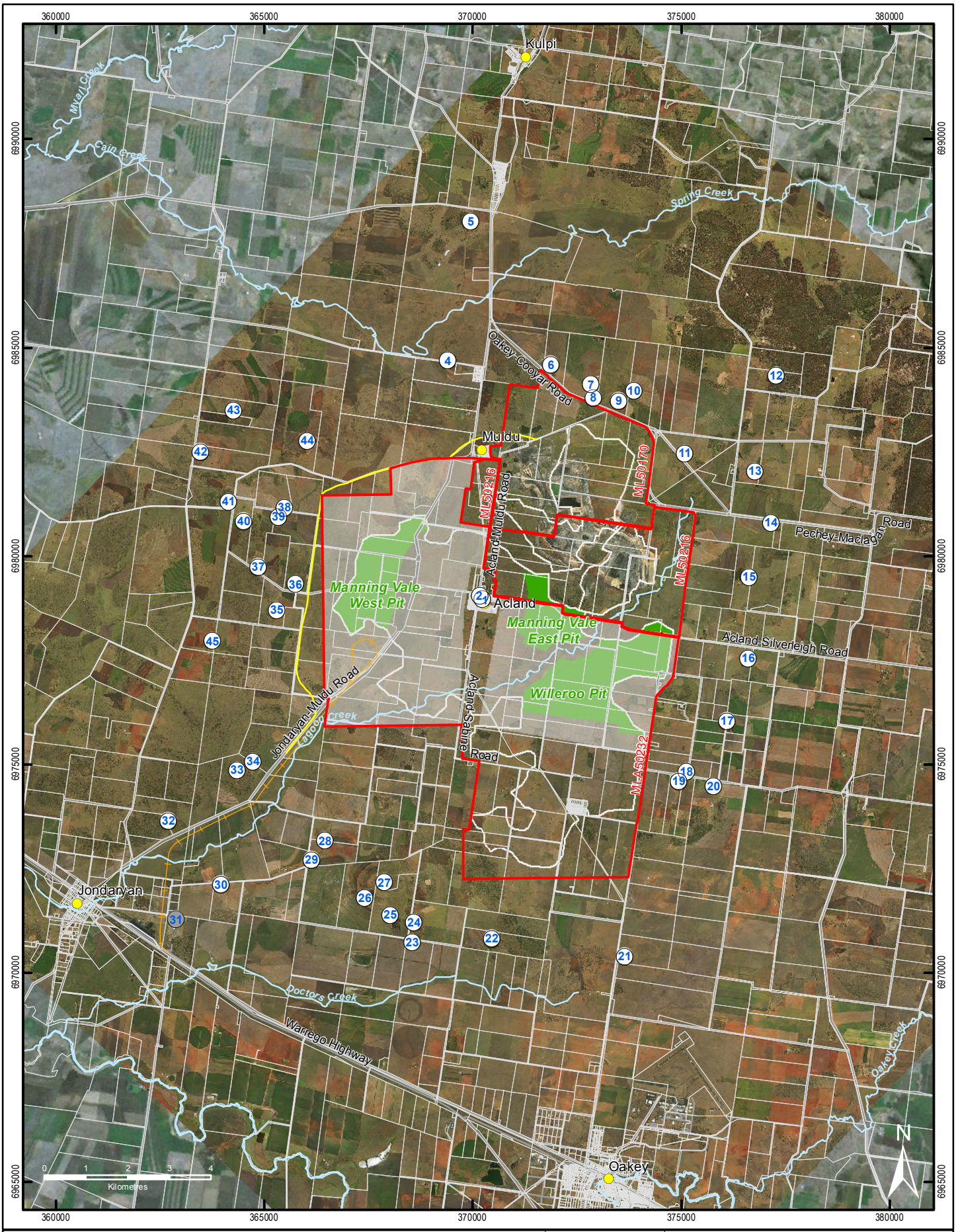
NAC has proposed a comprehensive air quality management strategy to manage potential air quality impacts from the revised Project including the implementation of:

- mitigation measures to minimise dust emissions;
- blast fume management procedures;
- a dust forecasting system;
- a range of air quality monitoring techniques (real time and contemporary);
- adaptive air quality management;
- communication and concern management; and
- an acquisition/relocation/treatment strategy.

Adaptive air quality management measures will include the suspension or modification of operations in response to potential dust risk predictions from the dust forecasting system, real time air quality monitoring data and visual monitoring.

This assessment considered the potential residual air quality risk through dispersion modelling incorporating the adoption of adaptive air quality management. The implementation of adaptive air quality management predicted no exceedances of the EPP (Air) objective. Successful implementation of adaptive air quality management will significantly reduce potential for air quality impacts from the revised Project.

The revised Project is expected to comply with the ambient air quality objectives in the EPP (Air) provided NAC successfully implement a comprehensive air quality management strategy including a dust forecasting system, real time air quality monitoring and adaptive air quality management through the suspension or modification of mining activities to reduce dust emissions. A comprehensive air quality impact assessment is presented in **Chapter 9**.



LEGEND

- Towns and Localities
- Sensitive Receptor - Residential
- Sensitive Receptor - Commercial
- Rail Spur
- Jondaryan-Muldu Road Diversion
- Creeks
- Mining Tenements
- Proposed Extent of Surface Rights Area
- Stage 3 Pit Areas

NEW HOPE GROUP

SKM

NEW ACLAND COAL MINE STAGE 3 PROJECT

Figure ES-6 - Sensitive Receptors

Scale 1:120,000 on A4
Projection: Australian Geodetic Datum - Zone 56 (AGD84)

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3.7 Greenhouse Gas and Climate Change

An inventory of greenhouse gas emissions for the revised Project has been prepared. The main sources of Scope 1 and Scope 2 greenhouse gas emissions for the revised Project are:

- direct CO_2 emissions from combustion of diesel in mining equipment and trucks;
- indirect CO_2 emissions due to consumption of electricity at the mine; and
- fugitive emissions from open cut coal mining.

There is a range of mitigation and management measures for greenhouse gas emissions, which will be implemented or continued by the revised Project. The measures can be broadly categorised as:

- reduce fuel usage by operations (improving operational efficiency);
- reduce electricity usage by operations;
- research and contributions to industry bodies;
- reporting and analysis; and
- research and contributions to industry bodies.

The proposed management measures to reduce greenhouse gas emissions from the revised Project are consistent with other mining operations in Queensland, and are further detailed in **Section 10.5**.

Greenhouse gas emissions were estimated based on published emissions factors, while fugitive emissions from the open cut coal mine were estimated from in-situ gas analysis. The operation of the revised Project is estimated to result in approximately 0.18 Mt CO_2-e on an annual basis, which represent 0.03% of Australia's greenhouse gas emissions. These emissions represent an increase of 0.055 Mt CO_2-e in greenhouse gas emissions when compared to current operations of the Mine. The increase in greenhouse gas emissions above current operations of the Mine represents 0.01% of Australia's annual greenhouse gas emissions.

The revised Project is considered to have a low vulnerability to climate change. Mitigation measures to minimise any potential impacts from climate change include:

- recycled water will be supplied from Toowoomba's WWRF to provide a consistent and reliable source of water to the revised Project;
- ongoing monitoring of rehabilitation areas and implement control measures, if required, to achieve rehabilitation success criteria;
- responsive water management system to deal with severe storm events; and
- progressive rehabilitation will be undertaken as soon as practical to minimise risk of erosion from exposed areas.

The assessment of greenhouse gas emissions is presented in **Chapter 10**.

3.8 Noise and Vibration

The noise and vibration impact assessment for the revised Project has been undertaken. A computer noise model was developed using SoundPLAN version 7.2 to predict the noise levels during different stages of the mining operations.

A number of operating scenarios were investigated and noise modelling exercises were carried out to assist in developing a mining operation that would demonstrate best practice and comply with legislative noise limits while achieving a feasible and viable mining operation.

By implementing noise management and mitigation measures, including reduced night time operation and using attenuated equipment (noise attenuation of noisier equipment including excavators, track dozers, loaders and rear dump trucks), the predicted noise levels from the mining operation will meet the *Environmental Protection (Noise) Policy 2008* (EPP (Noise))$L_{Aeq,adj,1\ hr}$ criteria of 42 dB(A) in daytime and evening hours, and 37 dB(A) in night time hours at all noise sensitive receptors over the life of the revised Project.

The un-weighted noise levels from the revised Project's mining operations are predicted to comply with the low frequency noise criteria. The airblast overpressure and vibration impacts from blasting can be managed to achieve acceptable levels at the sensitive receptors surrounding the revised Project.

The maximum operational noise levels at the noise sensitive receptors will meet the *Planning for Noise Control Guideline's* sleep disturbance criterion of L_{Amax} 52 dB(A) during the worst case temperature inversion condition at all noise sensitive receptors over the life of the revised Project.

Road and rail traffic noise impacts have been assessed and are found to comply with the Department of Main Roads (TMR) and Queensland Rail (QR) criteria, respectively.

The mitigation measures proposed by NAC as commitments to reduce the revised Project's potential noise impact are detailed in **Section 11.8**. Recommendations are provided to minimise the revised Project's potential noise and vibration impacts and to ensure nuisance levels at nearby sensitive receptors are kept to a practical minimum.

A comprehensive noise and vibration impact assessment is presented in **Chapter 11**.

3.9 Cultural Heritage

The landscape surrounding Acland has been significantly modified since European settlement in the mid nineteenth century. Small patches of remnant vegetation are scattered throughout what is generally a cultural landscape of farms and interlinking roads. A search of the Federal and State heritage registers for places of State and National significance was conducted. These searches revealed that one site, the Acland No. 2 Colliery, has been registered as a place of heritage value on the Queensland Heritage Register (Register No. 602599). The Acland No. 2 Colliery has also been recognised as a place of heritage value on the non-statutory National Trust of Queensland Heritage List (ROS 7/0). A search of the Federal government's Australian Heritage Database returned no results. The Acland No.2 Colliery and the park reserve located in Church Street in Acland are listed as Heritage Places for the purposes of administering the TRC Planning Scheme.

The revised Project will not directly impact on any of the 12 'cultural places' identified and detailed in **Section 12.2.7**. Specific management strategies for Acland and the Acland No. 2 Colliery have been prepared and are further discussed in **Section 12.2.9**. To satisfy its obligations as an owner of a Queensland Heritage listed site, the NHG has developed the Acland Colliery Conservation Management Plan for the Acland No.2 Colliery, and is provided in **Appendix J.12**.

In accordance with section 87 of the *Aboriginal Cultural Heritage Act* (ACH Act), NAC will require an approved Cultural Heritage Management Plan (CHMP) for the revised Project unless an exemption applies under section 86 of the ACH Act. The only statutory Aboriginal party for MLA 50232, comprises those people who together were the registered native title claimant for the former Western Wakka Wakka People native title claim.

In this regard, NAC possesses a signed 'Co-operation Agreement' with the Western Wakka Wakka People dated 15 October 2003 and has also a signed CHMP with the Western Wakka Wakka People dated 14 July 2006, which also applies to the land within MDL 244. All documents between NAC and the Western Wakka Wakka People are confidential and will only be discussed in general terms for the purpose of the EIS.

The cultural heritage assessment for the revised Project is presented in **Chapter 12.**

3.10 Traffic and Transport

The traffic and transport assessment examined potential traffic impacts from the revised Project, in terms of its construction and operational phases, which include:

- increased vehicle movements on the existing road network associated with the revised Project workforce;
- materials supply during the construction and operational phases; and
- altered traffic patterns and journey times resulting from permanent road relocations.

The traffic assessment found that both the construction and operational phases are not expected to have a significant impact on traffic operations on any of the key road links, with the Level of Service (LoS) for each phase estimated to remain unchanged for each road section in comparison to the background traffic volumes. During detailed construction planning, Traffic Control Plans will be prepared to safely manage road works and minimise disruption to traffic during construction.

Detailed intersection assessment will be undertaken during the preliminary design phase of the revised Project when the traffic demand and other infrastructures are confirmed through the EIS process. NAC will ensure that all road intersections required for the revised Project are adequate to safely cater for the construction and operational traffic volumes. However, given that intersection as currently planned would operate outside TMR's standard Degree of Saturation (DoS) thresholds in 2027 irrespective of the additional development traffic, TMR and TRC should take an active role in consultation with NAC in determining the appropriate intersection design. One school bus route (S24) will be affected by the revised Project. The revised access to Acland township and appropriate rerouting will be considered in consultation with all key stakeholders. Due to the small increase in traffic movements regenerated by the revised Project during the construction and operation phase, no

significant impacts are anticipated to the operation and safety of school bus services within close proximity to the revised Project. Access to Acland, via Oakey-Cooyar Road, will be maintained at all times during the revised Project's construction and operation phase. The local community will be adequately notified of the proposed changes to access and the proposed road closures during the construction and operation phase.

The Australian Level Crossing Assessment Model (ALCAM) Report outlines the key findings of the level crossing assessment undertaken on the key level crossings located within close proximity to the revised Project site. NAC will ensure that appropriate discussions are undertaken with the relevant road and rail authorities to ensure appropriate mitigation measures are implemented based on the proposed design considerations outlined within the ALCAM Report. The ALCAM Report is provided in **Appendix G.8.4**.

A number of mitigation measures will be implemented to reduce any potential impact to traffic from the revised Project. Mitigation measures include: scheduling tasks outside peak traffic periods, conducting materials haulage on established truck and arterial routes, staging of construction works to minimise congestion, notification and consultation as appropriate, implementation of local traffic control measures, provision of adequate parking, and utilisation of the private (internal) haul road.

A comprehensive traffic and transport impact assessment is presented in **Chapter 13**.

3.11 Waste Management

During the revised Project construction, operation and decommissioning phases, general, regulated and mining wastes will be managed to minimise adverse impacts on environmental values such as:

- the health and wellbeing of site personnel and nearby sensitive receptors;
- the diversity of ecological processes and associated ecosystems surrounding the revised Project site and;
- other environmental factors including land resources, surface and groundwater resources and air quality.

The appropriate management and storage of waste will prevent on-site and off-site pollution and enhance opportunities for reuse and/or recycling. General waste unable to be re-used will be disposed of at a licensed waste transfer facility. All regulated waste transported beyond the revised Project's mining lease boundaries will be transported by licensed waste transport carriers. All waste streams will be reviewed and assessed for potential reuse, prior to removal from the revised Project's ML boundaries.

The revised Project will not generate significant quantities of waste that has a market demand. There are likely to be opportunities to reuse and recycle aluminium cans, some containers such as glass bottles, paper and scrap steel. Some other general waste will be recycled or reused on-site, such as pallets, or disposed of by licensed waste management contractors.

All waste generated on-site during the construction, operational and decommissioning phases will be disposed of in accordance with the Waste Management Plan (WMP) which is provided in **Appendix J.13.**

A comprehensive assessment of the waste management requirements for the revised Project is presented in **Chapter 14**.

3.12 Visual Amenity

The low-lying nature of the revised Project site generally provides for extensive views of a predominately rural landscape with a medium degree of visual amenity. Apart from the Mine, the revised Project site is dominated by vegetated landscapes, both rural and natural, that are interspersed with unobtrusive residential developments.

Through the clearing of vegetation and the excavation of the mining areas, the revised Project will alter the visual characteristics of the site and the landscape will continue to change over the life of the mining operations, but in line with current Mine practices, rehabilitation of mined land will be conducted continuously and progressively. This will minimise the active mining footprint and maximise the return of rehabilitated land back to agricultural activity. The topography of the revised Project site will also be altered, albeit over time, through the placement of spoil external to the proposed mine pits.

Visual impacts caused by the revised Project would be consistent with what currently exists at the Mine and this is expected to reduce the prominence of the revised Project within the existing landscape. There will be new visual impacts as a result of the revised Project; however, through the implementation of mitigation measures, views of the mining operations from sensitive receptors would be limited.

Post-operation of the revised Project, the out-of-pit spoil dumps and remnant voids will be revegetated and returned to a relatively natural form to allow for existing grazing activities to continue. In the long-term, it is expected that impacts from the revised Project on the visual landscape will be negligible as the peaks and dips associated with the out-of-pit spoil dumps and the remnant voids will be similar to the undulating topography that is common throughout the broader, regional landscape.

A comprehensive visual impact assessment is presented in **Chapter 15**.

3.13 Social Environment

The revised Project will influence the existing social environment in a variety of ways. The social assessment indicated that NHG and the Mine play an important role in local and regional communities and that the revised Project will extend those benefits. Any additional pressure on the local environment and amenity will be mitigated and/or managed through strict environmental and social management strategies.

The revised Project will directly employ up to 260 people during the peak construction phase and approximately 435 employees during the peak operational phase. Indirect employment through contractors and suppliers are estimated at 1 144 FTE’s on average over the life of the revised Project. The revised Project will support indirect employment with increased demand for local business services and will contribute to the local, regional and State economies through the continued

application of local procurement policies and via local spending by workers during construction and operation.

The preservation of existing resident populations in the local and regional community, through the retention of workers in existing operations and the creation of new employment opportunities as part of the revised Project, will contribute to the longer term growth and vitality of local and regional communities, as will NAC's continued investment in community support and development activities.

NAC will seek to source local workers where possible; however, given the relatively low levels of unemployment across the region, it is expected that some workers will need to be sourced from outside of the TRC area. The greater TRC area's growing real estate market and service bases are expected to cover demand for housing from the revised Project workforce, particularly as it will be spread across several years.

Employment and training for the revised Project may encourage younger people to stay in the region which is important for the future growth and vitality of the area. The continuation of placement opportunities for trainees and apprentices in both mining and agricultural fields, and the availability of vacation and graduate employment each year, will encourage the retention of young people in local communities.

NAC has developed a project-specific Social Impact Management Plan (SIMP) to mitigate and / or manage any potential issues and enhance social benefits associated with the revised Project. The SIMP presents five action plans focussed on Community and Stakeholder Engagement; Workforce Management; Housing and Accommodation; Local Business and Industry and Health and Community Wellbeing and is subject to periodic review and amendment in consultation with relevant stakeholders, including consultation through the Community Reference Group (CRG). The SIMP is provided in **Appendix J.14**. NAC will also continue to contribute to the community through a Community Investment Fund, Community Sponsorship and Donation Program, training opportunities with APC and at the Mine, local employment opportunities and significant contribution to the economy.

A comprehensive social impact assessment is presented in **Chapter 16**.

3.14 Economic Environment

The revised Project will support construction jobs of up to 260 and approximately 435 operational jobs at peak, and attract construction costs of around $896 million. The revised Project will directly support approximately $6.6 billion in economic output from construction / capital and operational expenditure, while indirect and induced output will contribute a further $12 billion for a total output impact of almost $19 billion. Agricultural output valued at $2.1 million per year or total of $34.3 million will be temporary halted over the life of the revised Project. It is expected that progressive rehabilitation during the life of the operation would return the majority of impacted land to a state suitable for agricultural production, similar to successful rehabilitation to grazing that has been demonstrated at New Acland Mine.

The method used to derive state and sub-state level Input-Output (IO) tables and associated impact multipliers for the NSCC Project Economic Impact Analysis is similar to the Distributive Commodity Balance (DCB) Method, which has been used at the University of Western Australia and the University of Western Sydney. Likewise, the DCB method has been adapted from the Generation of Regional

Input-Output Tables (GRIT) methodology developed at the University of Queensland. The DCB methodology was adapted utilising a specially designed and streamlined hybrid methodology that incorporates the latest advances in disaggregation using location quotients and effective full-time employment to more accurately reflect industrial employment characteristics, the volume of economic activity, and industrial specialisation.

Total supported employment impacts (including direct, indirect and induced impacts) are estimated at 468 FTEs per year on average from construction / capital expenditure and 3,082 FTEs per year on average during operation. The results of the modelling show that the revised Project will potentially contribute to the on-going economic growth in the Darling Downs (which has historically been lower than the Queensland average). Household income benefits may contribute to increasing the median household income in the study area which is also below the Queensland average.

Estimated economic benefits for the study area can be maximised through strategies to increase local worker and business participation, including from local indigenous communities. NAC commits to the Queensland Resources and Energy Sector Code of Practice for Local Content which provides strategies for local business engagement including (not limited to):

- Openly promoting adopting of the code and implementing information dissemination sessions for local contractors / suppliers .Encouraging suppliers to collaborate with other suppliers to enable tendering for large contracts. Identifying capability development programs and promoting these to potential suppliers through supplier guides or as feedback for suppliers that were unsuccessful in prequalification or tendering.
- NAC also employs a number of approaches to support local employment, as well as employment for Indigenous people and people with a disability including:
- Flexible working arrangements.
- Maintaining relationships with education providers and opportunities for vacation employment and graduate employment through the NHG.
- Agreements with recognised traditional owners on processes to be undertaken to promote employment opportunities which will be re-negotiated for the revised Project.

The revised Project is not expected to have a significant impact on property values due to the existing number of unoccupied dwellings in the region. Further, during operation, the majority of the labour force is expected to be sourced locally. Negative impacts on future development are not expected, except where significant competition for labour and materials exists. This can be mitigated through sourcing labour and materials externally. However, this approach should only be pursued where absolutely necessary, since it would reduce the overall contribution of the revised Project to the local economy.

The assessment of economic impacts is presented in **Chapter 17**.

3.15 Health, Safety and Risk

The health, safety and environmental risk profile for the revised Project is generally ‘Low’ or ‘Moderate’. Areas of focus of risk management plans for higher risk areas will include noise, dust, groundwater, runoff, hydrocarbon leaks, weed & pest management, safety risks from slumping, fire,

run off from tailings, dam failure, and clearing of rare and endangered ecosystems. These risks are common to all open cut mining operations and are subject to the controls contained in the *Coal Mining Safety and Health Regulations 2001*. The revised Project's EA will also set conditions to manage key environmental risks.

The revised Project is unlikely to impact on community health, safety and quality of life. All identified risks to the community and surrounding environment will be assessed and mitigated as far as reasonably practicable. Mitigation measures will be developed in consultation with the relevant stakeholders.

Planning and management procedures, to address the significant emergency issues delineated in the risk assessment, are provided in the Emergency Management Plan for the revised Project which is located in **Appendix J.15.** The Emergency Management Plan forms part of NAC's broader Health, Safety, Environment and Community System currently in place at the Mine.

A comprehensive health, safety and environmental risk assessment is presented in **Chapter 18**.

3.16 Community Consultation

A comprehensive community consultation program was conducted to increase awareness of the revised Project in the community, provide accurate and relevant information on the revised Project and NAC's community activities and to ensure that all issues and concerns raised by stakeholders were identified and considered as part of EIS development and future project planning

Representatives of NAC and the revised Project actively engaged with stakeholders prior to and after the announcement of the revised Project. NAC's tiered approach to identifying revised Project stakeholders is detailed in the Stakeholder Engagement Plan, which is located in **Appendix K.1.** Key communication and engagement activities included:

- property owner discussions;
- employee communications;
- fact sheets;
- community newsletters;
- key stakeholder briefings;
- Community Reference Group meetings;
- advertising and media releases;
- information through the NAC Community Information Centre and the New Acland Community Liaison Officer;
- public tours and briefings at the Mine; and
- community contact points including a free call information line and enquiry email address.

Between November 2012 and August 2013, 580 contacts were recorded as part of the engagement program for the revised Project. Detail on specific community engagement activities is provided in **Section 19.5**.

Key discussion points raised during this consultation period included:

- queries about engagement activities for the revised Project, which are addressed in **Appendix K.2**. On-going community engagement will continue to focus on proactive discussions with community and stakeholders to better inform them about these processes;
- employment enquiries, which are addressed in **Chapter 16**;
- sponsorship and donation requests and opportunities, which are addressed in **Section 19.5.4**;
- discussions surrounding community partnerships, which are also addressed in **Section 19.5.4**;
- clarification and comments regarding the approvals process. On-going community engagement will continue to focus on proactive discussions with community and stakeholders to better inform them about these processes;
- concerns about potential dust levels, which are addressed in **Chapter 9**. There was also an appreciation that the JRLF would be relocated away from Jondaryan to a remote site on the mining lease area;
- discussion around potential impact on groundwater which is addressed in **Chapter 6**;
- information on education and training opportunities which are considered in **Chapter 16**;
- social impacts as a result of the revised Project, which are addressed in **Chapter 16**;
- business opportunities as a result of the revised Project, which are addressed in **Chapter 17**; and
- heritage opportunities and loss of community associated with Acland, which are addressed in **Chapter 12**.

Contacts with the community and stakeholders have been generally supportive with 64% of stakeholder interactions recorded as positive since announcement of the revised Project in November 2012. There has been a general recognition of benefits and opportunities through the provision of additional employment, training, sponsorship, community investment and business opportunities for Oakey and the surrounding communities. NAC will continue to engage with the community and stakeholders through all future phases of the revised Project.

The comprehensive community consultation program is detailed in **Chapter 19**.

3.17 Cumulative Impacts

There are no other resource developments within 50 km of the revised Project. The revised Project is considered to have minor potential for cumulative impacts at a localised or regional level with respect to terrestrial ecology, aquatic ecology, surface water, groundwater, air quality and noise.

The revised Project will result in up to an additional 27 weekly rail movements along the Western Rail Line to Queensland Bulk Handling (QBH). Recent market conditions have forced the closure of one mining operation on the Western Rail Line, while NHG's West Moreton operation is forecasted to close in the near future. These closures will result in a net reduction of weekly rail movements on the Western Rail Line. NAC proposes to construct a TLF as part of the revised Project including a veneering system that seals the exposed coal at the top of each loaded wagon to reduce the potential for dust emissions during transport along the rail system. Rail movements along the Western Rail Line to QBH are expected to meet relevant air quality and noise objectives.

The expected increase in greenhouse gas emissions from the revised Project represents a very minor contribution to global emissions and is considered to be insignificant.

The cumulative social impacts will depend on market conditions and mines operating in the area, so they could result in either an increased or a decreased demand for services and facilities.

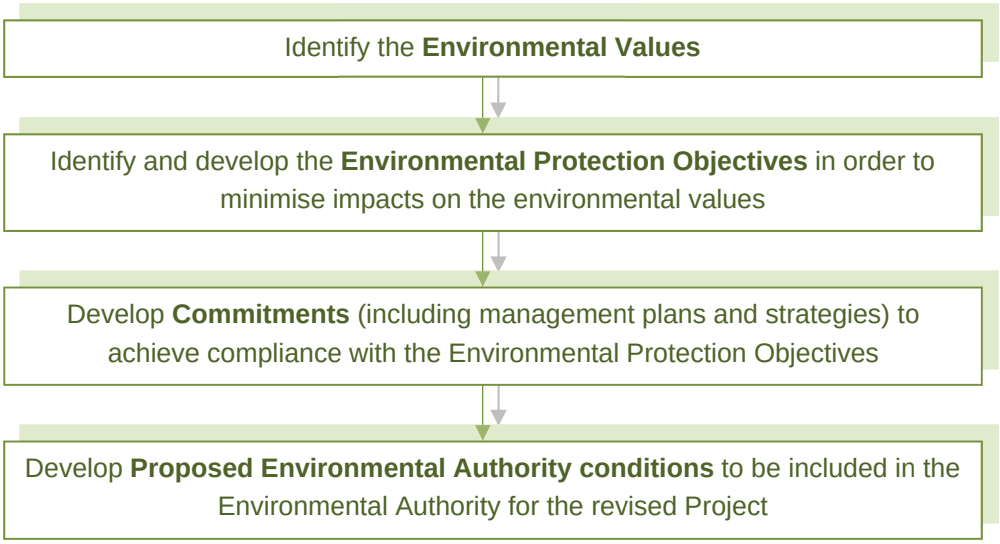
The cumulative economic impacts of the revised Project are likely to include increased export income and employment, which generate wealth within Queensland and Australia that significantly benefits the wider community.

A comprehensive cumulative impact assessment is presented in **Chapter 20**.

4 Management of potential impacts

4.1 Environmental Management Plan

The EM Plan has been prepared to address the ToR and it has been compiled by following the requirements of the EP Act, as shown below:



The EM Plan for the revised Project contains the following sections:

- **Section 1** – Introduction provides background on the proponent, describes each of the relevant mining leases and land tenure, and identifies the relevant stakeholders;
- **Section 2** – Project Description, describes the relevant mining activities and the land on which the mining activities are to be carried out;
- **Section 3** – Environmental Values, Impacts, Commitments, and Draft Conditions describes:
  - Environmental values likely to be affected by mining activities;
  - Potential adverse and beneficial impacts of the mining activities on the environmental values;
  - Environmental protection objectives;
  - Control strategies adopted to achieve the environmental protection objectives; and
  - Proposed EA conditions (including transitional arrangements).
- **Section 4** – Environmental Management describes details of the revised Project's systems for monitoring, reporting, research, training and auditing.

The EM Plan is located in **Appendix J.19**.

4.1.1 Commitments in the EM Plan

The commitments expressed in the EM Plan are measurable and auditable, setting out objectives and outlining control strategies to achieve the objectives . The commitments are listed below in the same order as they appear in the EM Plan.

Air

- The Proponent will implement the Air Quality Management Plan for the site prior to the commencement of any vegetation clearing or construction activities.
- The Proponent will achieve and maintain the level of dust control outlined in the EA.
- The Proponent will investigate all substantiated dust related complaints and implement corrective actions resulting from substantiated complaint investigations as required.
- All monitoring and sampling techniques will be consistent with the Queensland Government's Air Quality Sampling Manual and applicable Australian Standards.
- The revised Project will maintain plant and equipment in a proper condition.
- The revised Project will investigate energy efficiency ratings of plant and equipment for consideration in plant installations.
- A greenhouse gas inventory will be maintained and reported as required by the NGER legislation.

Waste

- A Waste Management Plan will be implemented and regularly reviewed and revised as required.
- Recycling of glass, aluminium, steel and cardboards will be undertaken, if feasible.
- Regular monitoring and auditing will be undertaken, with a program to address any outstanding non-conformances.
- NAC will evaluate the acid generation potential appropriately regularly during mining operations to assess its acid generating capacity.
- The following measures will be implemented to manage mine waste. Low capacity PAF (PAF-LC) and PAF mine waste:
    - progressively backfilled into pit voids and placed below the pre-mining groundwater level; and
    - co-mingled with non-acid forming (NAF) materials in out of pit dumps during construction.

Noise

- Noise and vibration monitoring will be undertaken as per the EA.
- The Proponent will implement the Noise and Vibration Management Plan.
- All substantiated noise and vibration complaints will be investigated and corrective action will be implemented as required.

Groundwater

- The Proponent will implement the Groundwater Monitoring and Impact Management Plan.
- The frequency of monitoring and the suite of analyses sampled for will be sufficient to ensure early detection of contamination of local groundwater resources of the GAB and any associated groundwater dependent ecosystems.

- Groundwater monitoring, sampling and annual review of the monitoring data will be conducted by a suitably qualified and experienced professional.
- All substantiated groundwater-based complaints will be investigated and dealt with promptly using NAC's complaint handling procedure.
- The proponent will comply with terms and conditions of any water licences.
- Trigger levels will be determined by the proponent before the commencement of mine operations.
- Make-Good Agreements will be entered in to with landowners, prior to de-watering for coal extraction, where it is predicted that mining will impact on the registered bores belonging to those landowners.

Surface water

- An operational separation distance of approximately 150 m will be maintained from the edge of the mining pits to Lagoon Creek, which will include a 50 m conservation buffer where no mining activities will be undertaken.
- The current conservation zone, 50 m either side of Lagoon Creek, from the Mine will be extended for the revised Project to promote the re-establishment of the riparian zone. No mining activities will occur within the proposed conservation zone.
- Sediment dams, environmental dams, pit water storage and other water management structures (e.g. bunds and drains) will be used appropriately by the revised Project as per the WRMP.
- The revised Project's water management will be based on the separation and management of clean and dirty water catchments.
- Water capture within the revised Project's clean areas will be diverted around operational areas and where practical, allowed to discharge off site as part of normal overland flow.
- Water from disturbed areas within the revised Project site will be diverted to sediment dams for treatment and possible reuse as a supplementary supply for the revised Project's water requirement.
- Surface runoff from the revised Project's potentially contaminated areas, such as infrastructure areas, will receive additional levels of treatment (e.g. oil-water separators and bunding). Water captured by these devices will be preferentially reused on site, while captured oil will be collected for recycling by a licensed contractor.
- Progressive rehabilitation will be undertaken as the revised Project's operational areas become available to reduce the amount of disturbed areas.
- Fuel, dangerous goods and hazardous chemicals will be managed as outlined by current standards, guidelines and in compliance with statutory requirements.
- Refuelling locations and handling of fuels will be undertaken away from all waterways including creeks and drainage paths.
- NAC's existing Standard Operating Procedures for spills and emergency response procedures will be expanded to incorporate the revised Project. Spill recovery and containment equipment will be available when working adjacent to sensitive drainage paths and within other areas, such as workshops.

- NAC will continue to commit to investigating all legitimate surface water complaints, and if a genuine problem is identified, conduct immediate remediation measures and establish standard operating procedures to minimise the possibility of a reoccurrence of the original issue.
- NAC's current water quality monitoring program will be expanded to incorporate the operational and decommissioning phases of the revised Project. The program is designed to ensure the WRMP is effective, to demonstrate compliance with the Mine's strict discharge limits, and to ensure the downstream water quality (physico-chemical parameters, at a minimum) is not being adversely impacted. In general, the monitoring program will include the following actions.
    - Water quality will be measured upstream and downstream of the revised Project site. Basic water quality indicators (i.e. Salinity, pH, DO, EC, temperature) will continue to be monitored on a monthly basis, or when water is present, and heavy metals, nutrients, anions and cations monitored twice annually.
    - During any release event, the receiving water will be monitored upstream (50 m to 100 m upstream of the release point) and downstream (200 m downstream of the release point) locations. Water quality variables will include basic water quality indicators, suspended solids, heavy metals, nutrients, anions and cations.
    - Fuel, dangerous goods, hazardous chemicals and work shop wastes will be managed to ensure compliance with current industry standards and guidelines for safety and environmental protection. These management actions will focus on handling, storage, spill containment, emergency response, establishment of 'standard operating procedures' for key operational aspects, and development of a responsibility matrix for operational and reporting matters.

Land and Biodiversity

- NAC will consult with the DEHP in relation to the realignment of the Jondaryan-Muldu Road and will ensure continuity and operability of the stock route.
- NAC will liaise with the DEHP and other relevant government agencies (e.g DTMR) to gain all relevant approvals in relation to the opening and closing of roads (including roads which are stock routes) and in land dealings relating to changes in land tenure.
- NAC will liaise with landowners and local authorities with respect to fire breaks and on-going maintenance programs.
- An assessment of the likelihood of offsite water discharges during the revised Project's operation was undertaken for the revised Projects' EIS and the findings of this assessment demonstrate that the risk of discharge from the revised Project is low. NAC will continue to evaluate and manage this risk over the life of the revised Project.
- NAC will expand its current monitoring programs and grazing trials to incorporate the applicable rehabilitation success criteria to guide its rehabilitation management and to collect the necessary data to demonstrate:
    - the geotechnical stability of the constructed landform;
    - the successful establishment of a suitable vegetative cover to support the final land use and minimise the potential for erosion; and
    - the productivity of the vegetative cover for grazing (beef production).

- NAC will undertake further management of any contaminated sites as the revised Project progresses and ensure all requirements of the EP Act are completed.
- NAC will assess whether any infrastructure will remain at the end of the revised Project's life in consultation with the relevant stakeholders.
- A decommissioning plan will be developed as part of the mine closure process.
- NAC will consult with the APC Manager as part of the mine closure process to determine which dams will be retained. If retained, each dam will be subject to a general inspection to ensure it is handed over in the best possible condition.
- As part of the mine closure process, a decommissioning plan will be developed for all dams not to be retained.
- NAC will continue to operate all Tailings Storage Facilities (TSF) in accordance with the relevant statutory requirements (including their management plans).
- As a statutory requirement, all TSFs will be rehabilitated as defined by a decommissioning plan. In general, each TSF will be capped with inert material, topsoiled and vegetated.
- NAC will ensure these sites are recorded on the EMR and possess a suitable site based management plan as part of the mine closure process.
- NAC will develop a specific management plan for the transfer of general waste from the Acland Tip to a general waste disposal cell within the revised Project site.
- Prior to mine closure, NAC will submit a suitable long term site-based management plan for the site (i.e. as required under the EP Act).
- All levees will be retained post mining to minimise the risk of flooding of the depressed landforms. The stability of these structures will be assessed as part of the mine closure process, and as required, maintenance works will be completed.
- NAC will ensure all statutory requirements for these structures are completed over the life of the revised Project.
- NAC will establish a suitable legal mechanism connected to the underlying land title to protect the Bluegrass (*Dichanthium sericeum)* based grassland offset in perpetuity. This legal agreement will also include a long term management plan for preservation of the *Dichanthium sericeum* based grassland offset.
- NAC will take all reasonable and practical measures to identify and prevent impacts to significant fossil specimens during the construction and operational phase of the revised Project. In the event of a significant fossil find, NAC will liaise with the Queensland Museum about strategies to protect the find.

Rehabilitation and Mine Closure

- A Final Land Use and Rehabilitation Plan has been drafted and will be regularly updated to capture project and rehabilitation changes;
- Progressive rehabilitation of disturbed areas using appropriate rehabilitation procedures will be undertaken;
- A rehabilitation monitoring program to assess rehabilitation success and a corrective action program to address areas of failed rehabilitation will be implemented;

- Final voids will be managed to ensure they are safe, stable and non-polluting. The following management plans that will be implemented and regularly reviewed and are relevant to land management and rehabilitation and decommissioning include:
  - Final Land Use and Rehabilitation Plan;
  - Topsoil Management Plan;
  - Conservation Zone Management Plan;
  - Threatened Species Translocation Plan;
  - Bluegrass Offset Management Plan; and
  - Pest and Weed management Plan.
- NAC will demonstrate in a scientifically rigorous manner the success of the revised Project's rehabilitation to allow future surrender of the associated mining leases.
- NAC will consult with government and community on a regular basis over the life of the revised Project to report on the progress of rehabilitation and other matters.
- NAC is committed to maximising the revised Project's rehabilitation success to ensure the APC can function as a competitive agribusiness. NAC will also continue to draw on the APC's expertise to assist and enhance rehabilitation management.
- NAC will use experience gained at the Mine and other mines in Queensland to meet its stable landform objective. Stable landforms will be established following mining, using soils capable of supporting vegetation communities adapted to the local environment. The stability of the post-mine landform will be achieved by applying sound rehabilitation practices. The disturbed land will be rehabilitated to a condition that is self-sustaining or to a condition where the maintenance requirements are consistent with the post-mining land use.
- NAC will use the existing grazing trial:
  - to assess the success of the current rehabilitated area in relation to the performance of cattle growth (beef production);
  - to evaluate current rehabilitation practices from a final land use perspective; and
  - as required, to develop new rehabilitation strategies to improve rehabilitation and long term grazing performance.
- Longer term, the APC will also use this information to develop appropriate land management plans for NAC's former mined land within both the current Mine and the revised Project site.
- A Mine Closure Plan will be submitted to the Regulatory Authority at least five years prior to the proposed surrender of New Acland Coal Mine's environmental authority and associated mining tenure. The Mine Closure Plan will be a dynamic document updated on an annual basis, and will be implemented via the revised Projects' Plan of Operations. Major stakeholders including the DEHP, other relevant government departments and agencies, as well as the public will be consulted as part of the mine closure process.
- A Final Rehabilitation Report and Environmental Audit Statement will be produced as a statutory requirement of the surrender process for the environmental authority and the associated mining lease relinquishments.

Stakeholder engagement

- NAC will continue to consult with relevant stakeholders using a variety of communication mechanisms to ensure that the local community is continually engaged about the revised Project. NAC will also continue to ensure its neighbours are properly consulted in relation to revised Project.
- NAC will continue its current policy of informing near neighbours in advance of each blast event on site. NAC will continue to consult with local authorities and/or relevant State government departments in relation to mining related issues.
- The revised Project has an established and operational complaints procedure that includes:
  - maintenance of a register of complaints held on-site;
  - a process for receiving, handling, investigating and documenting complaints;
  - investigation follow up and a response as soon as practicable to the complainant; and
  - a commitment to resolving legitimate complaints in an amicable and timely manner.

Cultural Heritage

- All employees and contractors will undertake cultural heritage awareness training; and all indigenous cultural heritage management will be in accordance with the revised Projects' CHMP.

5 Conclusions

The EIS presents an assessment of the environmental, social and economic values and impacts that potentially arise from the revised Project, and the proposed mitigation measures to minimise these impacts.

Overall, the EIS concludes that, with the implementation of the proposed mitigation measures, described in a series of management plans provided in **Appendix J**, the impacts of the revised Project will be appropriately managed whilst providing significant economic, as well as other benefits for the local, regional, state and national economies.

NAC will continue to work in close consultation with local residents, landholders, local businesses, government agencies, community and environmental groups and other key stakeholders throughout the planning and development of the revised Project to achieve mutually beneficial outcomes and relationships.